

## A Glossary of AV Terms



This glossary is intended as a handy resource for AV newcomers and experts alike. Thanks to our friends at InfoComm ([www.InfoComm.org](http://www.InfoComm.org)) for providing a substantial portion of the terms via their Glossary (<http://www.infocomm.org/cps/rde/xbcr/infocomm/GlossaryAVTerms.pdf>).

# A Glossary of AV Terms

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## A

**acoustics** - the science of sound wave behavior in air.

**AES** - Audio Engineering Society.

**All-In-One Presentation Switcher** – a single unit that combines a number of individual AV switching and control capabilities into a single chassis. See also: Enova DVX.

**alternating current (AC)** - an electric current that reverses its direction periodically.

**ambient light** - all light in a viewing room produced by sources other than the display.

**ambient noise** - sound that is extraneous to the intended , desired, intentional, audio; background noise.

**amplifier** - an electronic device for increasing the strength of electrical signals.

**amplitude** - the strength of an electronic signal as measured by the height of its waveform.

**AMX** –global AV company based in Richardson, Texas, founded in 1982. Designs, manufactures, sells and supports AV solutions for conference rooms, classrooms, and other venues.

**analog** - a method of transmitting information by a continuous but varying signal.

**angularly reflective screen** - a screen that reflects light back to the viewer at a complementary angle.

**ANSI** - American National Standards Institute.

**aperture** - an opening in a lens regulating the amount of light passing through the lens to the imager.

**architectural connectivity solution** – modular solution, typically mounted in a conference table, podium or lectern, that allows various types of devices to connect to an AV system. See also: HydraPort®

**artifacts** - small disturbances that affect the quality of a signal.

**aspect ratio** - the ratio of image width to image height.

**attenuate** - to reduce the amplitude (strength) of a signal or current.

**audio processor** - an electronic device used to manipulate audio signals in some manner.

**audio signal** - an electrical representation of sound.

**audio transduction** - converting acoustical energy into electrical energy, or electrical energy back into acoustical energy.

**automation** – performing a series of tasks at the press of a button or icon. In AV, this typically refers to automating complex tasks like initiating and maintaining a video conference from a touch panel or keypad

**AV/IT integration** – the notion that the formerly distinct AV and IT departments are merging under a common

IT-centric organizational structure and ideology

## B

**balanced circuit** - a circuit in which two branches are electrically alike and symmetrical with respect to a common reference point, usually ground; preferred to an unbalanced circuit due to its ability to reject noise.

**bands** - a grouping or range of frequencies.

**bandwidth** - a measure of information carrying capacity without distortion.

**bandwidth limiting** - the result of encoding a higher quality signal into a lower quality form, such as RGB converted into S-Video.

**baseband** - video signal that has not been modulated.

**bend radius** - maximum amount a conductor can be bent before excessive attenuation is encountered, signal integrity is compromised, or the conductor breaks.

**bi-directional polar pattern** - the shape of the region where some microphones will be most sensitive to sound from the front and rear, while rejecting sound from the top, bottom and sides.

**bit** - shortened form of binary digit, symbolized by 1s and 0s. The smallest unit of digital information.

**bit depth** - the number of bits used to describe data.

**blocking** - pieces of wood that have been inserted between structural building elements to provide a secure mounting point for finish materials or products.

**block diagram** - an illustration of the signal path through a given system.

**BNC** - a professional type of video connector featuring a two-pin lock.

**boundary microphone** - a microphone that relies on reflected sound from a surrounding surface.

**buffer amplifier** - an electronic device that provides some isolation between other components.

**bus** – (or buss); a wiring system that delivers power and data to various devices.

**byte** - an 8-bit word is called a byte. The acronym for byte is the upper-case B.

## C

**cable** - an assembly of more than one conductor (wire).

**capacitance** - the ability of a non- conductive material to develop an electrical charge which can distort an electrical signal.

**capacitive reactance** - the opposition a capacitor offers to alternating current flow. Capacitive reactance decreases with increasing frequency or, for a given frequency; the capacitive reactance decreases with increasing capacitance. The symbol for capacitive reactance is  $X_C$ .

**captive screw connector** - sometimes called a Phoenix® connector, it is a molded plastic connector whose termination requires that you strip and slide a wire directly into a slot on the connector. A set screw then pushes a gate down to hold the wire in place.

**cardioid** - heart-shaped region where some microphones will be most sensitive to sound predominately from the front of the microphone diaphragm and reject sound coming from the sides and rear.

**carrier** - modulated frequency that carries video or audio signal.

**category 5 (Cat 5)** - the designation for 100-ohm unshielded twisted-pair cables and associated connecting hardware whose characteristics are specified for data transmission up to 100 Mb/s. (Part of the EIA/TIA 568A standard.)

**category 5e (Cat 5e)** - enhanced version of the Cat-5 cable standard that adds specifications for far end crosstalk. (Part of the EIA/TIA 568A standard.)

**category 6 (Cat 6)** - cable standard for Gigabit Ethernet and other interconnect that is backward compatible with Category 5 cable, Cat-5e and Cat-3. Cat-6 features more stringent specifications for crosstalk and system noise. (Part of the EIA/TIA 568A standard.)

**CATV** - Community Antenna Television system. Broadcast signals are received by a centrally located antenna and distributed by cable through a region.

**CCTV** - (See closed circuit television).

**charged-coupled device (CCD)** - a semiconductor image-sensing device, commonly used in video and digital cameras, that converts optical images into electronic signals.

**chrominance** - the color portion of a composite or S-Video signal.

**clock adjustment** - also called timing signals, used to fine tune the computer image. This function adjusts the clock frequencies that eliminate the vertical banding (lines) in the image.

**closed circuit television (CCTV)** - a system of transmitting video signals from the point of origin to single or multiple points equipped to receive signals.

**cloud** – in AV, “cloud” refers to applications, content and services that reside outside of local IT infrastructure and are accessed via the internet

**coaxial cable** - a cable consisting of a center conductor surrounded by insulating material, concentric outer conductor and optional protective covering, all of circular cross-section. Abbreviated coax.

**CODEC** - an acronym for coder/decoder. An electronic device that converts analog signals, such as video and audio signals, into digital form and compresses them to conserve bandwidth on a transmission path.

**color burst** - that part of an NTSC video signal that carries the color information. It is a signal consisting of several (8 to 10 in NTSC) cycles of unmodulated color subcarriers, superimposed at a specified location within the composite signal.

**color difference signals** - signals which convey color information such as hue and saturation in a composite format. Two such signals are needed. These color difference signals are R-Y and B-Y, sometimes referred to as Pr and Pb or Cr and Cb.

**comb filter** - transversal filter that combs out a specific set of frequencies. Comb filters are very effective in separating the chrominance and luminance sidebands in an NTSC video signal.

**combiner** - in a process called multiplexing, the combiner puts signals together onto one cable constituting a broadband signal.

**common-mode** - refers to either noise or surge voltage disturbances occurring between the power neutral (white wire) and the grounding conductor (green wire). Unwanted common mode disturbances exist as a result of noise injection into the neutral or grounding wires, wiring faults, or overloaded power circuits.

**common-mode rejection ratio (CMRR)** - The ratio of the common-mode interference voltage at the input of a circuit, to the corresponding interference voltage at the output.

**component video** - color video in which the brightness (luminance) and color hue and saturation (chrominance) are handled independently. The red, green and blue or, more commonly, the Y, R-Y, B-Y signals are encoded onto three wires. Because these signals are independent, processing such as chroma keying is facilitated.

**composite video signal** - the electrical signal that represents complete color picture information and all synchronization signals, including blanking and the deflection synchronization signals to which the color synchronization signal is added in the appropriate time relationship.

**compression** - the action of the air molecules moving closer together permitting audible sound.

**compressor** - a compressor controls the overall amplitude of a signal by reducing that part of the signal which exceeds an adjustable level (threshold) set by the user. When the signal exceeds the threshold level, the overall amplitude is reduced by a ratio, also usually adjustable by the user.

**condenser microphones** - also called a capacitor microphone, it transduces sound into electricity using electrostatic principles.

**conductor** - in electronics, a material that easily conducts an electric current because some electrons in the material are free to move.

**cone** - most commonly used component in a loudspeaker system and found in all ranges of drivers.

**conferencing systems** - the technology by which people separated by distance come together to share information. Conferencing systems may include projection, monitor displays, computers, satellite connections video and audio playback devices, and much more.

**configuration** – using a software tool to set up and program a new AV system, rather than programming the system with detailed code. See also: programming

**continuity** - the quality of being continuous (as in a continuous electrical circuit).

**control** – the management of an analog or digital AV device or system from a user interface such as a touch panel or keypad

**controller** – a device that controls other devices, similar to a remote control

**control track** - the portion along a length of a recorded tape on which sync control information is placed; used to control the recording and playback of the signal.

**CPU** - (central processing unit); the portion of a computer system that reads and executes commands.

**crosstalk** - any phenomenon by which a signal transmitted on one circuit or channel of a transmission system creates an undesired effect in another circuit or channel.

**CRT** - Cathode Ray Tube; the video display tube used in monitors and receivers, radar displays and video computer displays. The CRT is a high-vacuum tube containing an electron gun to produce the images seen on the face of the tube.

**current** - the amount of electrical energy that is flowing in a circuit.

**curvature of field** - a blurry appearance around the edge of an otherwise in-focus object (or the reverse) when the velocity of light going through the lens is different at the edges than at the center of the surface, due to the lens design.

## D

**D-sub connector** - a generic name for D-shaped serial connectors used in data communications.

**DA** - (see distribution amplifier)

**dB SPL** - a measure of sound pressure level measured in dynes per centimeter squared. Its reference, 0 dB SPL equals 0.0002 dynes/cm<sup>2</sup>. dB SPL is used as a measure of acoustical sound pressure levels, and is a 20log function.

**decibel** - a comparison of two measurements or values. Abbreviated dB, it is one-tenth of a Bel (a unit of measurement named for Alexander Graham Bell).

**deflection coil** - a uniform winding of wire used to electromagnetically direct an electron beam to draw an image on a cathode ray tube (CRT).

**delay** - an audio signal processing device or circuit used to retard the speed of transmission on one or more audio signals or frequencies.

**demodulator** - electronic device that removes information from a modulated signal.

**depth-of-field** - the area in front of a camera lens that is in focus from the closest item to the camera to the furthest away.

**differential-mode** - refers to either noise or surge voltage disturbances occurring between the power hot and the neutral conductor. Most differential mode disturbances result from load switching within a building, with motor type loads being the biggest contributor.

**diffusion** - the scattering or random redistribution of a sound wave from a surface. It occurs when surfaces are at least as long as the sound wavelengths, but not more than four times as long.

**digital** - a method of transmitting information by discrete, non-continuous impulses.

**digital signage** – AV application that distributes content such as television programming, menus, information, advertising and other messages to a variety of displays throughout an organization, campus or facility

**digital-to-analog converter** - an electronic device that converts digital signals into analog form.

**D-ILA** - Digital Direct Drive Image Light Amplification projectors.

**DIN connector** - Deutsche Industrie-Norm (DIN) - a connector that follows the German standard for electronic connections.

**direct current (DC)** - electricity that maintains a steady flow and does not reverse direction, unlike alternating current (AC). Usually provided by batteries, AC to DC transformers, and power supplies.

**direct sound** - also known as near-field, it is sound that is not colored by room reflections.

**dispersion** - can be seen when a white light beam passes through a triangular prism. The different wavelengths of light refract at different angles, dispersing the light into its individual components.

**distributed sound** - a sound system in multiple loudspeakers separated by distance and typically operates in a lower sound pressure level than a high pressure system. The loudspeakers are most often suspended over the heads of the listeners.

**distribution amplifier** - an active device used to split one input into multiple outputs, while keeping each output isolated, and the signal level constant.

**DLP** - Digital Light Processing™ by Texas Instruments. A projection system that has technology based on the Digital Micromirror Device (DMD). It uses thousands of microscopic mirrors on a chip focused through an optical

system to display images on screen.

**document camera** - an imaging device used to create a video image of printed documents or three-dimensional objects.

**dome** - used in all ranges of drivers.

**driver** - in audio, an individual speaker unit.

**DTV** - Digital Television; a signal transmitted digitally.

**DVD** - Digital Video Disc or Digital Versatile Disk; an optical storage medium for data or video.

**DVI** - Digital Visual Interface; a connection method from a source (typically a computer) and a display device that can allow for direct digital transfer of data. The digital signal is limited to 5 meters.

**DVI-D** - one of two common multi-pin connectors available for DVI signals. The DVI-D carries no analog video information, only digital. The digital signal is limited to 5 meters.

**DVI-I** - one of two common multi-pin connectors available for DVI signals. The DVI-I adds analog video to the connection, permitting greater distances than the digital limit of 5 meters.

**DGX** – (See Enova DGX)

**DVX** – (See Enova DVX)

**DxLink®** - AMX transmitter / receiver modules that send audio, video, control, Ethernet and power over one shielded twisted pair cable up to 200m – 100m to the matrix switcher and 100m after the matrix switcher

**dynamic microphone** - a pressure- sensitive microphone of moving coil design that transduces sound into electricity using electromagnetic principles.

## E

**early reflected sound** - created by sound waves which are reflected (bounced) off surfaces between the source and the listener. The sound waves arrive at the listener's ear closely on the heels of the direct sound wave.

**echo cancellation** - a means of eliminating echo from an audio path.

**EDID** – Extended Display Identification Data. A data structure provided by a digital display to describe its capabilities to a video source (e.g. Blu-Ray player or set-top box).

**EIA** - Electronics Industries Alliance. The association which determines recommended audio and video standards in the United States.

**electromagnetic interference (EMI)** - an electrical disturbance caused by an electromagnetic field, either low frequency or radio frequency (RF).

**EMI** - (See electromagnetic interference.)

**emissive technology** - any display device that emits light to create an image.

**encoded** - a signal that has been compressed into another form to reduce size or complexity, as in a composite video signal.

**Enova®** – a line of AMX products that consolidate several functions and capabilities into a single chassis, reducing rack space and improving reliability.

**Enova® DGX** – a line of digital matrix switchers from AMX that provide centralized AV management for divisible conference rooms, large auditoriums, operations centers, sports bars and the Connected Campus.

**Enova® DVX** – a line of All-In-One Presentation Switchers from AMX that consolidate control, audio & video switching/distribution, scaling, converting, transcoding, amplification, professional-grade DSP audio mixing and twisted pair distribution into a single small chassis. Used to manage AV devices in conference rooms, classrooms and small auditoriums.

**enzo™** - an AMX device purposely designed for the collaboration space to easily access content and documents stored on USB, on the web, or in the cloud.

**equalizer** - electronic equipment that adjusts or corrects the frequency characteristics of a signal.

**equipment rack** - a centralized housing unit that protects and organizes electronic equipment.

**Ethernet** - a set of network cabling and network access protocol standards for bus topology computer networks invented by Xerox but now controlled by the 802.3 subcommittee of the IEEE.

**expander** - an audio processor that comes in two types – a downward expander and a part of a compander.

## F

**F connector** - a threaded connector that is used in transmission applications such as cable television. The cable's center conductor also serves as the connector's center pin.

**feedback** - 1. unwanted noise caused by the loop of an audio system's output back to its input. 2. in a control system, data supplied to give an indication of status, i.e., on or off.

**fiber optic** - a technology that uses glass or plastic threads or wires to transmit information.

**field** - one half of a video frame containing every other line of information. Each standard video frame contains two interlaced fields.

**filter** - filters remove or pass certain frequencies from a signal.

**fixed matrix** - a type of display that has a fixed grid on which it recreates an image.

**flex life** - the number of times a cable can be bent before it breaks. A wire with more strands, or more twists per inch, will have a greater flex life than one with a lower number of strands, or one with less twists per inch.

**flush mount** – method of mounting a touch panel to a wall or other surface, where the panel's display screen remains flush with the surface without extending outward

**focal length** - abbreviated as FL, it is the distance, in millimeters, between the center of a lens and the point where the image comes into focus. The value given to a lens, stated in inches or millimeters. The shorter the focal length, the wider the angle of the image.

**focus** - the act of adjusting a lens to make the image appear clear, sharp, and well- defined.

**footcandle** - abbreviated as Ftc, it is an English unit of measure expressing the intensity of light illuminating an object. The illumination from one candle falling on a surface of 1 square foot at a distance of 1 foot.

**footprint** - 1. indicates where possible mounting points are to join two pieces together, the total contact area, and how they may or may not fit together. 2. space required to house an equipment rack or device. 3. coverage area of a communications satellite.

**frame** – 1. an individual segment of film 2. a complete video picture or image of odd and even fields; two fields equal one frame.

**frequency** - cycles per second, expressed in Hertz (Hz) or the number of cycles in a given time period.

**frequency response** - the range of frequencies within which a microphone is sensitive.

**fresnel lens** - a flat glass or acrylic lens in which the curvature of a normal lens surface has been collapsed in such a way that concentric circles are impressed on the lens surface; often used for the condenser lens in overhead projectors, in rear projection screens, and in studio spot lights.

**front screen projection** - a system that employs a light reflecting screen for use when the image will be projected from a source in front of the screen.

**f-stop** - the ratio of focal length to the effective diameter of a lens; also called f- number, it represents how much light is able to pass through the lens.

**fundamental frequency** - the lowest frequency in a harmonic series; known as "pure tone".

## G-H

**gain** - 1. electronic signal amplification. 2. the ability of a projection screen to concentrate light.

**gate** - an audio processor that allows signals to pass only above a certain setting or threshold.

**gauge** - a thickness or diameter of a wire.

**genlock** - to lock the synchronization signals of multiple devices to a single source; the condition which exists when the sync generators of multiple devices are locked to a single source.

**glass bead screen** - screen covered with tiny glass beads, each of which provides a spherically reflective surface.

**glass mount** – a kit used for mounting a touch panel directly to a glass surface

**graphics adaptors** - commonly referred to as a "video card", which outputs computer signals.

**grounding** - the techniques and hardware that connect electronic equipment and wiring to a reference point.

**harmonics** - higher frequency sound waves that blend with the fundamental frequency.

**H.264** - a standard for video compression, currently one of the most commonly used formats for the recording, compression, and distribution of high definition video.

**HDCP** – High Bandwidth Digital Content Protection. An encryption technique that allows transmission of digital video and audio between components, but prohibits those signals from being recorded. Used with the DVI and HDMI interfaces.

**HDMI** – High Definition Multimedia Interface. Digital interface that can carry HD video, high-resolution digital audio, and control information on a single cable.

**HDTV** - High Definition Television. High resolution television transmissions and displays which must exhibit a vertical resolution of 720 or higher.

**headend** – the equipment located at the start of a cable distribution system where the signals are processed and combined prior to distribution.

**heat sink** - a device that absorbs and dissipates heat produced by an electrical component.

**hemispheric polar pattern** - the dome shape of the region that some microphones will be most sensitive to sound. Used for boundary microphones.

**hertz (Hz)** - cycles per second of an electrical signal.

**horizontal blanking** - the H sync pulse that tells the retrace electron beam to turn off at the end of each line.

**horizontal blanking interval** - the time during which the electron beam is turned off so that it can move into position to begin the next scan line; usually a very brief period, lasting between 5 -15 microseconds.

**horns** - loudspeakers that reproduce mid to high frequencies.

**hot spot** - the part of a displayed image which is unevenly illuminated, usually a bright area in the center.

## I-J-K

**IEEE** - The Institute of Electrical and Electronics Engineers.

**impedance** - opposition to alternating current measured in ohms; it may vary with frequency of the applied current; also referred to in microphone technology as Hi Z and Lo Z.

**inductance** - the ability of a magnetic field to transfer electrical current on a conductor.

**inductive reactance** - the opposition to the flow of alternating current by the inductance of a circuit, measured in ohms.

**infrared (IR)** - a frequency range of light used to send information. Remote controls and other wireless devices use IR.

**insulation** - material applied to a conductor that is used to isolate the flow of electric current between conductors and to provide protection to the conductor; also known as the dielectric.

**interlaced scanning** - the scanning process that combines odd and even fields of video to produce a full frame of video signal.

**Inverse Square Law** - law of physics stating that some physical quantity or strength is inversely proportional to the square of the distance from the source of that physical quantity. Applied to light and sound in AV.

**IP** - Internet protocol (IP); standard networking protocol, or method, which enables data to be sent from one computer or device to another over the Internet.

**jacket** - outside covering used to protect wires in a cable and their shielding.

**junction box** - 1. A portable set terminal for power cables. 2. Generally, metal or plastic boxes where wire and/or cable terminates, combines, or splits; used to protect the conductors.

**Kensington lock** - an anti-theft system designed by Kensington Computer Products Group, using a lock-and-cable apparatus. Used by AMX to secure touch panels in conference rooms and classrooms.

**keypad** – device containing buttons that control various analog and digital devices in a conference room or classroom

**keystone error** - the trapezoidal distortion of a square-cornered image due to the optical effect of the projection device not being located in its proper position in respect to the screen.

## L

**LAN** - Local Area Network; a computer network limited to the immediate area, usually the same building or floor of a building.

**lavalier** - a small microphone designed to be worn either around the neck or clipped to apparel.

**LCD** - Liquid Crystal Display.

**LCoS** - Liquid Crystal on Silicon

**LED** - Light Emitting Diode.

**lenticular** - a screen surface characterized by silvered or aluminized embossing, designed to reflect maximum light over wide horizontal and narrow vertical angles. Must be held very flat to avoid hot spots.

**limiter** - audio signal processor that functions like a compressor except that signals exceeding the threshold level are reduced at ratios of 10:1 or greater.

**local monitor** - a device used to monitor the output of a signal from a system or other device in a local vicinity.

**logarithm** - A logarithm is the exponent of base 10 that equals the value of a number.

**loudspeaker** - a transducer that converts electrical energy into acoustical energy. Loudspeaker components are primarily a driver within an enclosure.

**lumen** - a measure of the light quantity emitted from a constant light source across one square meter.

**luminance** - also called luma and abbreviated Y, it is part of a bandwidth limited video signal combining sync information and brightness information.

**lux** - a contraction of the words luminance and flux; metric version of footcandle.

## M

**matrix decoder** - produces red, green, and blue from Y, R-Y, and B-Y.

**matrix switcher** - an electronic device with multiple inputs and outputs, the matrix allows any input to be connected to any one, several, or all of the outputs.

**matte white screen** - evenly disperses light 180 degrees uniformly, both horizontally and vertically, creating a wide viewing cone and wide viewing angle.

**MATV** - Master Antenna Television system; a television system where broadcast programs are received via a master antenna array and then distributed to users over coaxial cable or fiber optic cable.

**media retrieval system** - a system in a facility that allows for remote requests of content to be delivered from a headend location.

**microphone sensitivity** - a specification that tells how much electrical energy is derived from a specified sound level input.

**midrange** - loudspeakers that reproduce midrange frequencies, typically 300 Hz - 8,000 Hz.

**mixer** - device for blending multiple audio sources.

**Modero®** - a line of touch panels from AMX

**Modero S®-Series** – a line of AMX touch panels used in conference rooms and classrooms for controlling AV equipment and for displaying room schedules

**Modero X®-Series** - a line of AMX touch panels used in high end conference rooms, boardrooms and classrooms for controlling AV equipment and for displaying room schedules

**modulator** - converts composite or S-Video signals, along with corresponding audio signals, into modulated signals on a carrier channel.

**modular connector** - connector used with 4, 6, or 8 pins. Common modular connectors are RJ-11 and RJ-45.

**monitoring** – using a centralized software system to maintain real-time usage and performance statistics on AV and IT assets. See also: Resource Management Suite® (RMS).

**monophonic** - uses input from all microphones and relays them from the electronic control system to the loudspeakers using a single path or channel.

**MPEG-2** - Moving Pictures Expert Group; refers to a compression scheme that reduces the number of bits needed to code the video image.

**multi-format** – connector that supports a number of different video formats on the same connector with use of a breakout cable

**multimeter** - a multipurpose test instrument with a number of different ranges for measuring current, voltage, and resistance.

**multiplexing** - the process used by the combiner to put together a number of modulated signals.

**multipoint** - videoconferencing that links many sites to a common gateway service allowing all sites to see, hear, and interact at the same time; requires a bridge or bridging service. Also called continuous presence.

## N-O

**native resolution** - the number rows of horizontal and vertical pixels that create the picture. The native resolution describes the actual resolution of the imaging device and not the resolution of the delivery signal.

**near-field** - sound that has not been colored by room reflections. This is also known as direct sound.

**nit** - the metric unit for screen, or surface brightness.

**notch filter** - "notches out", or eliminates, a specific band of frequencies.

**NTSC** - National Television System Committee; the standard for analog video transmission in North America.

**octave** - a band, or group of frequencies. The relationship of the frequencies is such that the lowest frequency is half the highest: 200 Hz – 400 Hz is an octave, 4,000 Hz – 8,000 Hz is an octave.

**Ohm's Law** - defines the relationship between current, voltage, and resistance in an electrical circuit as proportional to applied voltage and inversely proportional to resistance. The formula is  $I=V/R$ . I- current (in amps), V= voltage (in volts), R = Resistance (in Ohms).

**omni-directional** - describes the shape of the area for microphones that have equal sensitivity to sound from nearly all directions.

**operating system (OS)** - platform; enables software applications to communicate with the CPU.

**oscilloscope** - a test device that allows measurement of electronic signals by displaying the waveform on a CRT.

**overhead projector** - a device which produces an image on a screen by transmitting light through transparent acetate placed on the stage of the projector.

## P

**PAL** - Phase Alternate Line; the video standard for much of Europe and Australia.

**PDP** - (See Plasma Display Panel).

**peak** - the highest level of signal strength, determined by the height of the signal's waveform.

**peaking** - an adjustment method that allows compensation for high frequency loss in cables.

**phantom power** - a direct current (DC) power source available in various voltages.

**phase** - the relative timing of one signal to another.

**Phoenix®** - a molded, plastic, captive screw connector whose termination requires that you strip and slide a wire directly into a hole on the connector (compression termination).

**phone connector** - an audio connector used as a speaker connector. Common types are 1/4 inch and 1/8 inch.

**phono** - the European name for an RCA connector.

**phosphor** - the substance which glows when struck by an electron beam, providing the image in a CRT. The higher the quality of the phosphor, the brighter and more vivid the image.

**pink noise** - a sound that has equal energy (constant power) in each 1/3-octave band.

**pixel** - acronym for picture element. The small element used to build a digital image.

**Plasma display panel (PDP)** - A direct view display made up of an array of cells, known as pixels, which are composed of three subpixels, corresponding to the colors red, green, and blue. Gas in the plasma state is used to react with phosphors in each subpixel to produce colored light (red, green, or blue) from a phosphor in each subpixel.

**point-to-point** - conferencing where two sites are directly linked.

**point-source** - a sound system that has a central location for the loudspeaker(s), mounted high above, intended to cover a large area; typical of a performance venue or a large house of worship.

**polar pattern** - (or pickup pattern); the shape of the area that a microphone will be most sensitive to sound.

**primary optic** - the lens that focuses the image onto the screen.

**prism** - a prism beam splitter filters the light into its red, green, and blue components.

**programming** – writing and deploying custom software code to set up an AV system. See also: configuration

**progressive scanning** - traces the image's scan lines sequentially, such as an analog computer monitor.

**pure tone** - (See fundamental frequency.)

**pulling tension** - maximum amount of tension that can be applied to a cable or conductor before it is damaged.

## Q-R

**QR Code** – a type of barcode originally designed by Toyota for industrial uses that is now used by a smartphone that scans the code and converts it to a useful form such as a standard URL for a website, thereby obviating the need for a user to type it into a web browser.

**Quick Response Scheduling** – an AMX feature that allows users to scan a QR code mounted outside a conference room or classroom and view that room's schedule on a smartphone

**rack unit (RU)** - unit of measure of the vertical space in a rack. One RU equals 1.75 inches (44.5 mm).

**radio frequency (RF)** - generally refers to signals such as radio and TV broadcast signals, or radio frequency control signals; the range of frequencies used for electrical transmission.

**radio frequency interference (RFI)** - tendency of a radio transmission to interfere with other electronic signals. Radio frequency energy is radiated by all electrical equipment - when it is a strong enough signal it becomes interference in audio systems.

**RAM** - Random Access Memory; the most common computer memory used by programs to perform necessary tasks while the computer is on; an integrated circuit memory chip allows information to be stored or accessed in any order and all storage locations are equally accessible.

**Rapid Project Maker (RPM)** – cloud-based AMX software application used to configure AMX AV systems without the need for programming

**rarefaction** - the action of the molecules moving apart.

**raster** - the scanned or illuminated area of a CRT.

**ratio** - the comparison of two quantities.

**RCA** - a connector most often used with line level audio signals; also known as a phono connector.

**rear screen projection** - a presentation system in which the image is projected through a translucent screen toward the audience; projecting an image through a translucent screen material for viewing from the opposite side, as opposed to front projection.

**reflection** - light or sound energy that has been redirected by a surface.

**reflective technology** - any display device that reflects light to create an image.

**refraction** - the bending or changing of the direction of a light ray when passing through a material, such as water or glass. How much light refracts, meaning how great the angle of refraction, is called the refractive index.

**resistance** - the property of a material to impede the flow of electrical current, expressed in ohms.

**resolution** - 1. the amount of detail in an image. 2. the number of picture elements (pixels) in a display.

**Resource Management Suite® (RMS)** – an AMX software application for IT and AV managers that provides remote management and scheduling capabilities for AV assets and building systems. Available in Enterprise or cloud-based versions.

**retrace time** - the time it takes for the electron beam to turn off, travel to its next starting point, then turn back on to begin scanning again.

**retro unit** - self-contained rear projection system.

**reverberant sound** - sound waves that bounce off of multiple surfaces before reaching the listener, but arrive at the listener's ears quite a bit later than early reflected sound.

**RF system** - a closed circuit system becomes an RF system when the composite video and audio signals are modulated at a certain frequency, called a channel. RF systems require a display device (e.g. TV) with a tuner set to a selected channel to display the information modulated onto that frequency.

**RGBHV** - refers to a high bandwidth video signal with separate conductors for the red signal, green signal, blue signal, horizontal sync and vertical sync.

**RGBS** - refers to a four component signal comprised of a red signal, green signal, blue signal, and a composite sync signal.

**RGsB** - refers to a three component signal comprised of a red signal, green signal with composite sync added to the green channel and a blue signal. Often called "sync on green."

**ring** - a network topology that connects terminals, computers or nodes in a continuous loop.

**RMS** – (See Resource Management Suite)

**ROM** - Read Only Memory; memory whose contents can be accessed and read but cannot be changed. Permanent memory that can only be entered once, normally by a manufacturer; may not be altered or removed.

**Room PC** – a computer dedicated to providing internet access and connectivity in a conference room or classroom

**Room Scheduling** – a centralized AV application that enables organizations to book meeting rooms or classrooms, and to view meeting room schedules within an application like MS Outlook

**RsGsBs** - red, green, and blue signals with composite sync added to each color channel; referred to as "RGB sync on all three". It requires three cables to carry the entire signal.

**RU** - (See Rack Units).

## S

**sampling rate** - how many samples of the analog signal are taken in a given time interval in creating the digital signal.

**satellite television** - entertainment or business video and audio transmitted via a satellite.

**scaler** - feature in a display device that changes the size of an image without changing its shape. Scaling may be required when the image size does not fit the display device.

**scan conversion** - the process of changing the horizontal scan rate of one device to that of another. Usually used to describe changing the scan rate of a computer to match the television (NTSC/PAL/SECAM) video format for the purpose of recording or viewing on television video equipment.

**scan rate** - the frequency of occurrence of a display drawing one line of information.

**scattering** - when light hits a textured surface, the incoming light waves get reflected in multiple angles because the surface is uneven.

**SDTV** - Standard Definition Television.

**SECAM** - Séquentiel Couleur Avec Mémoire (Sequential Color with Memory); the video standard in France.

**shield** - 1. a physical layer in some cables used to protect signals and sometimes used as a return path for current. Three basic types of cable shielding: foil, braid and combination.

**shotgun microphone** - a long, cylindrical, highly sensitive, unidirectional microphone used to pick up sound from a great distance.

**signal generator** - test equipment instrument that produces calibrated electronic signals intended for the testing or alignment of electronic circuits or systems.

**signal to noise ratio** - (S/N ratio); the ratio, measured in decibels, between the audio or video signal, and the noise accompanying the signal. The higher the S/N ratio, the better the quality of the sound or picture.

**SMATV** - Satellite and Master Antenna Television system; a television system where satellite and broadcast programs are received via a master antenna array and distributed to users over coaxial cable or fiber optic cable.

**SmoothTouch™** - an exclusive AMX technology for touch panel screens with a glass overlay that supports single touch gesturing and works with a finger, glove or pointing device

**Speakon™** - specialized connector used to hook up speakers without causing a short circuit; allows connection of speaker while working, or hot.

**spherical aberration** - light passing through the edges of the lenses can also have focal lengths different from those passing through the center is called spherical aberration.

**splitter** - an electronic device that divides a signal into different pieces to route to different devices.

**star** - a network topology where all network devices are connected to a central network device that is usually a hub or a switch.

**stereophonic** - commonly shortened to "stereo", input from all microphones is split into at least two channels before driving the signal through the loudspeakers.

**streaming video and audio** - sequence of "moving images" or "sounds" sent in a continuous, compressed stream over the Internet and displayed by the viewer as they arrive. With streaming video or audio, a web user does not have to wait to download a large file before seeing the video or hearing the sound.

**subwoofers** - loudspeakers that reproduce lower frequencies, typically 20 Hz - 200 Hz.

**super cardioid polar pattern** - the exaggerated heart-shape of the area that a highly directional microphone is most sensitive to sound.

**surface mount microphone** - also called a boundary microphone, placed on a table to pick up sound. Used in boardrooms and other environments where a number oftalkers must be "picked up" and where the microphone needs to remain unobtrusive.

**surround sound** - more complex stereo playback systems that use from two to five channels for realistic sound production. The popular term used to describe an experience where the sound 'surrounds' you. This is best achieved using surround-encoded material, a receiver, and surround speakers.

**S-Video** - a video signal, also known as Y/C. Y is the luminance and C is the chrominance. Y and C are transmitted on separate conductors.

**switcher** - a peripheral or sometimes integrated device used to select one of a group of signals.

**sync** - shortened form of synchronization; the timing information that keeps images displaying properly.

**system** - a compilation of multiple individual AV components and sub-systems interconnected to achieve a communication goal.

## T

**table mount** – a device for mounting a touch panel to a table in a conference room, classroom or other space

**taps** - connections to the transformer windings allowing you to select different power levels from the transformer.

**telepresence** – a set of technologies designed to allow a person to feel as if they were present from a remote location, involving enterprise-grade video conferencing and other technologies.

**tensile strength** - the maximum force that a material can withstand before deforming or stretching.

**throw distance** - the length of the projection beam necessary for a particular projector to produce an image of a specified size.

**time base corrector (TBC)** - the circuitry, or a stand alone component, used to stabilize the horizontal lines of an analog video image (typically originating from tape).

**time code** - a method of numbering video frames according to SMPTE standards; the 8-digit address representing hour, minute, second, and frame, recorded on the videotape's control track.

**touch panel** – user interface that enables a user to control a variety of analog and digital devices in a conference room, classroom or other venue.

**transmissive technology** - any display device that creates images by allowing or preventing light to pass.

**transient disturbance** - a momentary variation in power such as a surge, spike, sag, blackout, noise, or other type of transient.

**TRS** - Tip, Ring, Sleeve - a three-conductor design of a phone connector that can be terminated as balanced or unbalanced.

**TS** - Tip, Sleeve - a two-conductor design of a phone connector used for an unbalanced circuit.

**tweeters** - loudspeakers that have high frequencies, typically 2,000 Hz - 20,000 Hz.

**twisted pair** - any number of wires that are paired together and twisted around each other; can be shielded or unshielded.

## U-V-W

**unbalanced circuit** - transmits the audio signal on a single conductor that is referenced to ground.

**unity gain** - derived from the number 1, unity gain refers to no change in gain.

**USB** – Universal Serial Bus. An industry standard developed in the mid-1990s that defines the cables, connectors and communications protocols used in a bus for connection, communication, and power supply

between computers and electronic devices. The most commonly used connector for mobile devices.

**user interface (UI):** the device used by an End User (meeting attendee, teacher, technician) to control the AV system during a meeting, class or other session. Typically a touch panel or keypad.

**UTP** - unshielded twisted pair cable typically used for data transfer, contains multiple 2-conductor pairs twisted at regular intervals, employing no external shielding.

**vectorscope** - a specialized oscilloscope used in video systems to measure chrominance accuracy and levels.

**vertical blanking** - the action of turning off the trace on an analog CRT during vertical retrace.

**video conference** – collaboration session involving video feeds among remote participants, using an enterprise-grade videoconferencing system. See also: web conference, VTC)

**viewing angle** - the viewing angle determines how far off the axis (screen centerline) a viewer can still sit and still see a quality image. This is no greater than 45 degrees off the projection axis.

**viewing cone** - the best viewing area for the audience. The term cone is used because there is width, height, and depth to the best viewing area, and this area emanates from the center of the screen.

**volt** - the basic international unit of potential difference or electromotive force; symbolized by an upper case V.

**voltage** - the electrical potential to create current flow in a circuit.

**VTC** – video teleconference. See also: video conference, web conference

**wall mount** – a device for mounting a touch panel to a wall, typically for displaying a room's schedule outside of the room

**WAN** - Wide Area Network; a data communications system that uses telecommunications circuits to link local area networks (LANs) that are distributed over large geographic distances.

**waveform monitor** - a specialized oscilloscope used to display and analyze the video signals sync, luminance and chroma levels.

**wavelength** - the distance between two corresponding points of two consecutive cycles measured in meters.

**web conference** – collaboration session involving video feeds over the internet using a desktop collaboration tool such as Skype or Lync.

**wire** - a single conductive element intended to carry a voltage or electronic signal.

**white noise** - a sound that has the same energy level at all frequencies.

**WLAN** - Wireless Local Area Network; a network that shares information by radio frequency (RF).

**woofers** - loudspeakers that have low frequencies, typically 20 Hz - 200 Hz.

## X-Y-Z

**XLR connector** - a popular type of audio connector featuring three leads: two for the signal and one for overall system grounding. A secure connector often found on high quality audio and video equipment; sometimes called a Canon connector.

**Y/C** - a video signal, also known as S-Video. Y is the luminance and C is the chrominance. Y and C are transmitted on separate synchronized conductors.

**zoom lens** - lenses that allow the operator to adjust focal length for sizing or distance.