

Dictionary of Technical Terms

TP7057-00 B2

FIRST PRINTING: **JULY 1991**

Contacting Grass Valley Group

Region	Voice	Fax
North America	(800) 547-8949 530-478-4148	(530) 478-3347
Pacific Operations	+852-2585-6688 Support: 852-2585-6579	+852-2802-2996
U.K., Europe, Asia, Middle East	+44 1753 218 777	+44 1753 218 757
France	+33 1 45 29 73 00	
Germany	+49 221 1791 234	+49 221 1791 235

Address	Grass Valley Group P.O. Box 599000 Nevada City, CA 95959-7900 USA
Web Site	www.grassvalleygroup.com

Copyright © Grass Valley Group. All rights reserved.

This document may not be copied, in whole or in part, or otherwise reproduced, except as specifically permitted under U.S. copyright law, without the prior written consent of Grass Valley Group, P.O. Box 599000, Nevada City, CA 95959-7900 USA. GRASS VALLEY GROUP is a registered trademark and Grass Valley is a trademark of Grass Valley Group. All registered trademarks and trademarks are property of their respective holders. Grass Valley Group products are covered by U.S. and foreign patents, issued and pending. Product options and specifications subject to change without notice. The information in this manual is furnished for informational use only, is subject to change without notice, and should not be construed as a commitment by Grass Valley Group. Grass Valley Group assumes no responsibility or liability for any errors or inaccuracies that may appear in this publication.

A

A

Ampere.

A-B editing

See *A-B roll*.

A-B roll

Videotape editing arrangement in which scenes on tape are played alternately on VTRs A and B and recorded on VTR C. Typically, the final output recorded on VTR C contains some scenes from VTR A and some scenes from VTR B with transitions (cuts, mixes, wipes etc.) between the scenes.

absorption loss

In telecommunications, attenuation of the optical signal within the fiber optic transmission medium. Usually specified in terms of dB/km.

AC (ac)

Alternating current.

AC coupling

A method of coupling one circuit to another through a capacitor or transformer so as to transmit the varying (AC) characteristics of the signal while blocking the static (DC) characteristics. In some analog GVG distribution amplifiers, when the AC coupling mode is selected, a feedback loop maintains the output signal at an average DC level of 0 volts regardless of APL (average picture level) or DC offset of the incoming signal.

AC/DC coupling

May also be called simply DC coupling. Coupling between circuits which accommodates the passing of both AC and DC signals.

accumulation

See *key accumulation*.

accumulative latch

A feature of some GVG keyers that allows combining of several key sources in a single keyer.

active picture period

That portion of the video signal that produces the viewable part of the television picture as distinguished from that portion of the video signal that occurs during blanking (horizontal and vertical retrace).

active video

The portion of a video signal that contains picture information.

active window

The window in a software application that is currently selected for use.

adaptive

Able to adjust or react to a video condition or application, as an adaptive circuit. This term usually refers to filter circuits.

ADC (A-D, A/D, A-to-D)

Analog-to-digital converter.

additive key

Method of keying in which two complementary video signals that have already been shaped by multiplication with a key signal are added to create a composite image.

additive mix

Addition of two video images together without attenuation of either signal.

address

1. A precise frame location on a videotape, usually identified by a time code number. 2. A memory location or device identifier in microprocessor and computer terminology.

AES

Audio Engineering Society.

AES/EBU

Informal name for a digital audio standard established jointly by the AES and EBU organizations. The sampling frequencies for this standard varies depending on the format being used; the sampling frequency for D1 and D2 audio tracks is 48 kHz.

AFV

Audio follow video.

AGC

Automatic gain control.

Ah

Ampere-hour.

air

To broadcast a signal.

alarm indication signal (AIS)

In telecommunications, an all 1's signal (generally) generated by in-line equipment to indicate to down line devices that an input has failed. See also *blue signal*.

album

A storage place within a video editing application for cataloguing and archiving clips, effects, and other production elements.

aliasing

Defects or distortion in a television picture. In analog video, aliasing is typically caused by interference between two frequencies such as the luminance and chrominance fre-

quencies or the chrominance and field scanning frequencies. It appears as moire or herringbone patterns, straight lines that become wavy, or rainbow colors (See *cross color*). In digital video, aliasing is caused by insufficient sampling or poor filtering of the digital video. Defects are typically seen as jagged edges on diagonal lines and twinkling or brightening in picture detail.

alignment

The adjustment of components in a system for optimum performance.

all inputs hostile

Measurement technique, particularly for crosstalk, using worst case conditions (typically, full chroma signal on all inputs other than the one under test).

all ones

A digital signal consisting of data that contains all logical ones. In telecommunications, a test signal consisting of 11111.

alphanumeric

A display symbol set consisting of the twenty-six letters of the alphabet and the digits 0 through 9.

alternate mark inversion (AMI)

In telecommunications, an encoding protocol where successive data 1's are transmitted as alternate, equal positive and negative pulses, and data 0's are sent as spaces, each of zero amplitude.

a.m.

Ante meridiem.

AM

Amplitude modulation.

ambient temperature

The temperature of the surrounding medium, typically the air, which comes into contact with a device. Room temperature.

A-mode assembly

See *sequential assembly*.

amp (A)

1. Ampere.

ampere (A)

Unit of measure of electrical current.

Amphenol

A connector manufacturer.

amplitude

The magnitude of a signal in voltage or current. Frequently expressed in terms of peak, peak-to-peak, or RMS.

amplitude modulation (AM)

A method of imposing information on a carrier signal, such as a sine wave, by varying its amplitude.

analog

1. An adjective describing any signal that varies continuously as opposed to a digital signal, which contains discrete levels. 2. A system or device which operates primarily on analog signals.

analog component

Another name for component video, such as RGB or Y, R-Y, B-Y, as opposed to digital component video. See *component video*.

analog component island

A discrete set of analog component equipment within a non-component facility.

analog-to-digital converter

A circuit that uses digital sampling to convert an analog signal into a digital representation of that signal.

anti-aliasing

A feature of some video devices, such as character generators, which minimizes aliasing by filtering and other techniques. See *aliasing*.

AOS

Alternate Operator Service.

aperture correction

The enhancement of a video signal to increase image sharpness. Aperture correction is employed to compensate for the finite size of a scanning beam or a pixel.

APD

Avalanche photodiode.

APL (average picture level)

The average level of the active video (portion of video between blanking pulses), expressed as a percentage or in IRE.

append mode

In video devices capable of creating key frame effects, a mode that permits new key frames to be added to an existing key frame effect to make the effect longer.

application

A software package that runs on a computer system.

application window

The main or home window displayed by a software application from which other subordinate windows are accessed.

architecture

1. Internal organizational (circuit) structure of an electronic product.
2. Physical layout and interconnection scheme of a studio.

archive

Off-line storage of video/audio onto backup tapes, floppy disks, optical disks, etc.

artifacts

Undesirable elements or defects in a video picture. These may occur naturally in the video process and must be eliminated in order to achieve a high-quality picture. Most common are cross color and cross luminance.

ASCII

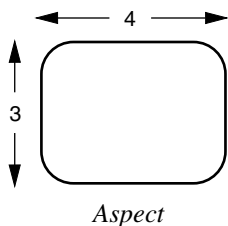
American Standard Code for Information Interchange. A standard code for transmitting data, consisting of 128 letters, numerals, symbols, and special codes each of which is represented by a unique binary number.

ASIC

Application specific integrated circuit. An integrated circuit designed for special rather than general applications.

aspect ratio

1. The ratio of television picture width to height. In NTSC and PAL video, the present standard is 4:3.
2. The ratio of wipe pattern width to height.



assembly

1. A manufactured part made by combining several other parts or subassemblies. For example, a cable assembly consists of the cable with connectors at each end.
2. Assembly language.

assemble edit (assemble mode)

An editing mode that replaces all signals on the record tape (video, audio, control, and time code tracks) with new signals. See also *insert edit*.

assembly language

A symbolic computer language in which a programmer can create programs that the computer's assembler program will translate into machine language for controlling the computer. Assembly language is a higher level language one step above machine language.

asynchronous

Lacking synchronization. In video, a signal is asynchronous when its timing differs from that of the system reference signal. A foreign video signal is asynchronous before it is treated by a local frame synchronizer.

ATM

Asynchronous Transfer Mode. A data transmission scheme using self-routing packets of 53 bytes, 48 of which are available for user data.

atomic frequency standard

In television, an extremely accurate means of timing using an atomic clock.

ATR

Audio tape recorder.

ATSC

Advanced Television Systems Committee (USA). A group whose charter is to develop voluntary national standards for high definition television.

attached

A physical channel of a digital picture manipulator is attached to a logical channel of a controller if the physical channel is successfully acquired by the controller. A physical channel may be attached to only one logical channel of one controller at a time.

attenuation

The decrease in amplitude of a signal.

attenuator

A circuit that reduces signal amplitude.

ATV

Advanced television. High resolution digital television, several versions of which are in proposal stages in the US and Europe.

audio

Sound. An electrical signal that carries sound information.

audio bridge

In telecommunications, a device that mixes multiple audio inputs and feeds back composite audio to each station, minus that station's input. Also known as a mix-minus audio system.

audio crosspoint module

Circuit board containing crosspoints for audio signal switching.

audio distribution amplifier (audio DA)

A device used to replicate an audio signal, typically providing 6 outputs, each of which is identical to the input signal.

audio-follow-video (AFV)

An operational mode in which audio and video switchers are tied together so that when the operator selects the video source, the audio simultaneously and automatically switches to the same source.

audio over

See *over*.

auto assembly

In video editing, the editing system automatically records all edits listed in the edit decision list. This allows the operator to complete an edit decision list and then let the editing system perform all of the recording automatically.

auto clean

A feature of GVG editors that automatically cleans the edit decision list during the course of editing. This removes duplicate or overlapping edits so that over-recordings are eliminated. See 409.

AUTO MATCH™

A feature of GVG editors that automatically finds a match to the last record VTR edit and inserts the match at the proper VTR in the mark table.

automatic changeover switch

Equipment that monitors the outputs of two sync generators (one in-use and one backup) and automatically switches to the backup sync generator should there be a failure of the sync generator in use.

auto select key

A feature of some video keyers that automatically selects the key source when the operator selects the key fill.

auto setup

A feature of some GVG chroma keyers that automatically adjusts the chroma key after the operator identifies the chroma key background color using a cursor.

autotiming

Capability of some digital video equipment to automatically adjust input video timing to match a reference video input. Eliminates the need for manual timing adjustments.

auto transition

On a video switcher, an automatic transition where the motion of the lever arm is electronically simulated.

AutoTrim

In some GVG editing systems, AutoTrim allows two adjacent video clips to be trimmed at the same time. The in point of one clip is trimmed at the same time that the out point of the adjacent clip is trimmed.

auxiliary bus

A single crosspoint bus, typically used in conjunction with a production switcher. Often used to feed a digital picture manipulator with the same inputs as the primary inputs applied to the switcher.

auxiliary channel (aux)

In a video editing system, a channel reserved for connecting an external audio and/or video device.

avalanche photodiode

Electronic device used as a detector in some fiber optic transmission systems.

AWG

American Wire Gauge.

axis

Relating to digital picture manipulation, the X axis is a horizontal line across the center of the screen, the Y axis is a vertical line, and the Z axis is in the third dimension, perpendicular to the X and Y axes and indicates depth and distance.

B

B3ZS (bipolar with three zero substitution)

In telecommunications, a DS3 coding method in which strings of three data 0's are replaced with either a B0V or 00V. B is a bipolar pulse, and V is a pulse of the same polarity as the previous pulse. B0V or 00V is output so that the number of B pulses between consecutive V pulses is odd.

B6ZS (bipolar with six zero substitution)

In telecommunications, a DS2 coding method in which strings of six data 0's are replaced with 0VB0VB. B is a bipolar pulse, and V is a pulse of the same polarity as the previous pulse.

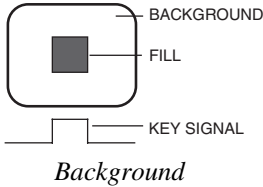
B8ZS (Eight zero substitution)

In telecommunications, a DS1 coding method in which strings of eight data zeros are replaced with the fol-

lowing: 000VB0VB. B is a bipolar pulse, and V is a pulse of the same polarity as the previous pulse.

background (program video)

In video keying operations, the main "program" picture into which keyed video is inserted. Usually the image with the lowest priority in an effect; i.e., the bottom layer.



Background

background color cancellation (BCC)

A chroma key feature which senses the color of the chroma key backing and replaces it in the chroma key scene with a complementary color. As a result, the two colors cancel each other. This helps to eliminate the undesirable halo or fringing effect surrounding the foreground object in the chroma key.

background color suppression (BCS)

A chroma key feature which senses the color of the chroma key backing and replaces it with an adjustable luminance level. This helps prevent any of the backing color from showing in the chroma key.

background generator

A video generator that produces a solid-color output which can be adjusted for hue, chroma, and luminance.

background mix

A dissolve between two background (program) video pictures in which one gradually replaces the other.

background transition

A transition between signals selected on the preset background and program background buses of a switcher.

background video

1. Video that forms a background scene into which a key may be inserted. 2. A solid-color video output generated by the background generator within a device, such as a production switcher, for use as background video in key effects.

background wash

A color matte effect in which the matte color graduates from dark to light or from one color to another.

background wipe

A transition in which a background (program) video picture is added, removed, or replaced with another video picture as a geometric pattern moves across the screen.

backplane (rear connector channel, mother-board)

The physical area, usually at the rear of an electronics frame, where modules and cables plug into the system.

back porch

The portion of a video signal that occurs during blanking from the end of horizontal sync to the beginning of active video. The blanking signal portion which lies between the trailing edge of a horizontal sync pulse and the trailing edge of the corresponding blanking pulse. Color burst is located on the back porch.

backspacing

The process of rewinding a videotape from the desired edit-in point, to facilitate proper speed and synchronization.

backtiming

backtiming

Method of calculating the edit-in point by subtracting the duration of the edit from the edit-out point.

backup supply

A redundant power supply that takes over if the primary power supply fails.

balanced

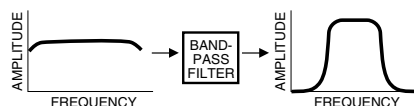
A circuit having two sides (conductors) carrying voltages which are symmetrical around a common reference point, typically ground.

ballistics

Describes the dynamic characteristics of a meter movement—most notably, response time, damping, and overshoot. Also used to describe the physical characteristics of tape machines (inertial, ringing, damping, etc.).

bandpass filter

A filter with a single transmission band that attenuates the frequencies on either side of the band.



Bandpass Filter

bandwidth

The complete range of frequencies over which a circuit or electronic system can function with minimal signal loss, typically less than 3 dB. The information carrying capability of a particular television channel. In PAL systems the bandwidth limits the maximum visible frequency to 5.5 MHz, in NTSC, 4.2 MHz. The CCIR 601 luminance channel sampling frequency of 13.5 MHz was

chosen to permit faithful digital representation of the PAL and NTSC luminance bandwidths without aliasing.

bank

1. A group of E-MEM Effects Memory registers, typically ten registers.
2. A mix/effects level in a video switcher, i.e., M/E bank.

bars

See *color bars*.

baseband

The frequency band occupied by a signal that modulates a carrier before it combines with the carrier in the modulation process.

baseline shift

A form of low-frequency distortion resulting in a shift in the DC level of the signal.

baud

A unit of signaling speed equal to the number of signal events per second. Baud is equivalent to bits per second in cases where each signal event represents exactly one bit. Often the term baud rate is used informally to mean baud, referring to the specified maximum rate of data transmission along an interconnection. Typically, the baud settings of two devices must match if the devices are to communicate with one another.

BCC

Background color cancellation.

BCD

Binary coded decimal. A coding system in which each decimal digit from 0 to 9 is represented by four binary (0 or 1) digits.

BCS

Background color suppression.

bearding

Video distortion that appears as short black lines extending to the right of bright objects within a scene.

beeper

A device that makes a clicking or chirping sound to alert the user that a control knob has reached a limit.

bel

A measure of voltage, current, or power gain. One bel is defined as a tenfold increase in power. If an amplifier increases a signal's power by 10 times, its power gain is 1 bel or 10 decibels (dB). If power is increased by 100 times, the power gain is 2 bels or 20 decibels.

Belden

A cable manufacturer.

bends

A group of digital picture manipulator special effects in which the video image is twisted about an axis.

BER

Bit error rate.

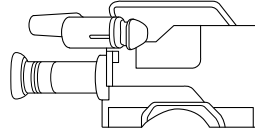
Beta

Informal name for Betacam, a professional color difference videotape recording format that uses the Y, R-Y, and B-Y color difference components. Also the name of a consumer videotape recording format that is completely different from the professional Betacam format. Betacam

Portable camera/recorder system using 1/2-inch tape originally developed by Sony. The name may also refer just to the recorder or the interconnect format; Betacam uses a version of the Y, R-Y, B-Y color difference signal set. Betacam is a registered trademark of the Sony Corporation.

Betacam SP

A superior performance version of Betacam. SP uses metal particle tape and a wider bandwidth recording system. BETR



Betacam

bias

1. In digital picture manipulators, a characteristic of location/positioning which controls the direction of the motion path as it passes through a key frame position. 2. Current or voltage applied to a circuit to set a reference operating level for proper circuit performance, such as the high frequency bias current applied to an audio recording head to improve linear performance and thus reduce distortion.

binary

A base-2 numbering system using the two digits 0 and 1 (as opposed to ten digits (0 - 9) in the decimal system). In computer systems, the binary digits are represented by two different voltages or currents, one corresponding to 0 and another corresponding to 1. All computer programs are executed in binary form.

bipolar

A signal that contains both positive-going and negative-going amplitude. May also contain a zero amplitude state.

bipolar violation (BPV)

In telecommunications, a data 1 pulse that is the same polarity as the last data 1 pulse. Indicates a data error or zero substitution.

bird

bird

a satellite.

BISDN

Broadband Integrated Services Digital Network.

bit

Binary digit. The smallest unit of data in a digital system. A bit is a single one or zero. A group of bits, such as 8 bits or 16-bits, compose a byte. The number of bits in a byte depends upon the processing system being used. Typical byte sizes are 8, 16, and 32.

bit parallel

Transmission of digital video a byte at a time down a multi-conductor cable where each pair of wires carries a single bit. This standard is covered under SMPTE125M, EBU 3267-E and ITU-R BT.656 (CCIR 656).

bit serial

Transmission of digital video a bit at a time down a single conductor such as coaxial cable. May also be sent through fiber optics. This standard is covered under ITU-R BT.656 (CCIR 656).

bit slippage

1. Occurs when word framing is lost in a serial signal so that the relative value of a bit is incorrect. This is generally reset at the next serial signal, TRS-ID for composite and EAV/SAV for component. 2. The erroneous reading of a serial bit stream when the recovered clock phase drifts enough to miss a bit. 3. A phenomenon that occurs in parallel digital data buses when one or more bits get out of time in relation to the rest. The result is erroneous data. Differing cable lengths is the most common cause.

bit stream

A continuous series of bits transmitted on a line.

BKGD

Background.

black

See *color black and stripe*.

black burst

See *color black*.

black level

The lowest transmittable luminance level that can occur during the active picture portion of a video signal. When viewed on a monitor this signal level portrays the color black.

black reference

See *black level*.

blanking insertion

See *blanking processor*.

blanking level

The voltage level equal to or below the black level that acts as a signal to turn off the scanning beam of a camera or monitor.

blanking processor

A circuit which strips blanking, sync, and sometimes burst from a signal and replaces them with clean blanking, sync, and burst from a reference source. This process ensures that blanking, sync, and burst do not contain any unwanted noise, level changes, or timing shifts.

blanking width

The specific length of time during which blanking takes place.

blanking (BLKG)

1. The time period when picture information is shut off. Blanking is a voltage level which is at or below black picture level and acts as a sig-

nal to turn off the scanning beam. Synchronizing pulses which control invisible retrace of scanning are active during the blanking period. 2. A standard signal from a sync generator used to create blanking in video.

bleed-through

See *crosstalk*.

BLKG

Blanking.

blocking

Occurs in a multistage routing system when a destination requests a source and finds that source unavailable. In a tie line system, this means that a destination requests a tie line and receives a "tie line busy" message, indicating that all tie lines are in use.

blooming

1. The defocusing of regions of the picture where brightness is excessive. 2. On video monitors, adjusting the white levels so that they are just at the point of leaving grey and becoming white.

blue

One of the three primary color signals (red, green, and blue) produced by a camera or applied to a monitor.

blue signal

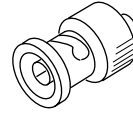
In telecommunications, an alarm signal composed of 1's and 0's (101010, etc.) substituted for lost valid input signal to indicate loss of the signal to downstream equipment.

B-mode assembly

A GVG editor term. See *checkerboard assembly*.

BNC

Bayonet Neill-Concelman. A cable connector used extensively in television and named for its inventor.



BNC

board

1. A printed circuit consisting of a flat board of insulating material with conductive circuits etched on its surface. 2. In GVG terminology, a board (as opposed to a module) is a printed circuit before it has been stuffed with electrical components. The term board is also used for fully-stuffed printed circuit boards that bolt into place in an assembly, whereas the term module refers to printed circuit assemblies that slide into position in a cell.

BOC

Bell Operating Company.

boot up

To start up. Most computers contain a system operating program that they read out of memory and operate from after power up or restart. The process of reading and running that program is called boot up.

border

An effect where a color or monochrome edge is produced around a key or a wipe pattern.

Borderline®

A key enhancement option that produces a black, white, or colored border or drop shadow around the key or changes the key into a matte-filled outline.

bounce

1. Overshoot of the proper DC level of the video signal due to multiple AC couplings in a signal path. Causes sudden brightness in the picture.

bounce free

Characteristic of circuit or equipment where overshoot of blanking DC levels does not occur.

box mask

A rectangular key mask which is adjustable for width and height. See also *mask*.

boundary replicate

A digital picture manipulation effect which reverses the soft, dark key edges caused by the defocus effect.

breakaway

A take operation in which the audio and video signals do not automatically follow one another; audio and video are switched in separate operations.

breakup

Disturbance in the video or audio signal, often caused by loss of sync or videotape damage.

breezeway

In an analog video signal, that portion of the "back porch" between the trailing edge of the sync pulse and the start of the color burst.

bridge

1. A circuit that matches other circuits to each other. 2. To place one circuit in parallel with another.

brightness

In NTSC and PAL video signals, the brightness information at any particular instant in a picture is conveyed by the corresponding instantaneous DC level of active video.

Brightness control is an adjustment of setup (also called black level or black reference).

broadband

1. A response that is the same over a wide range of frequencies. 2. Capable of handling frequencies greater than those required for high-grade voice communications (higher than 3 to 4 kilohertz).

Bruch blanking sequence

A PAL blanking sequence named after its inventor. The sequence ensures that each field starts with the same burst phase as the burst at the end of the previous field.

BSA

Basic Serving Arrangement.

BSE

Basic Service Element.

buffer

1. A circuit or component which isolates one electrical circuit from another. 2. A digital storage device used to compensate for a difference in the rate of flow of information or the time of occurrence of events when transmitting information from one device to another. 3. In telecommunications, a protective material used in cabling optical fiber to cover and protect the fiber. The buffer material has no optical function.

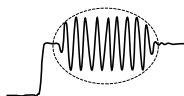
bumpers

A post production term relating to a group of effects used for video program lead-ins.

burst (color burst)

Seven to nine cycles (NTSC) or ten cycles (PAL) of subcarrier, placed near the end of horizontal blanking to serve as the phase (color) refer-

ence for the modulated color subcarrier. Burst serves as the reference for establishing the picture color.



Burst

burst flag (BF)

A pulse used to gate the color reference subcarrier (burst) onto the back porch of each horizontal blanking interval. Also called burst gate (BG).

burst gate (BG)

See *burst flag*.

burst of subcarrier

See *burst* or *color burst*

burst vector

In composite video signals, the amplitude and angle of the color reference signal.

bus

A group of conductors that together constitute a major signal path. A signal path to which a number of inputs may be connected to feed to one or more outputs.

bus address

A code number sent out to activate a particular device on a shared communications bus.

button per source

A control panel which has a separate button for each source. Also called button per function.

BVB (black-video-black)

An editing mode in which an edit is previewed starting with a black picture, followed by a preview of the edit, and ending in black.

B-Y

One of the color signals (blue minus luminance) of a color difference video signal set. The formula for deriving B-Y from the red, green, and blue component video signals is $-.30R - .59G - .89B$. See *Y*, *R-Y*, *B-Y*.

bypass relay

A relay used to bypass the normal electrical route in the event of power, signal, or equipment failure.

bypass switcher

An audio-follow-video switcher usually associated with a master control switcher. Used to bypass the master control switcher output during emergencies, failures, or off-line maintenance.

byte

A group of data bits which are processed together. Typically, a byte consists of 8, 16, or 32 bits.

C

C

Celsius. Also chrominance.

Cable equalization

The process of altering the frequency response of a video amplifier to compensate for high-frequency losses in coaxial cable.

cable loss

Signal loss caused by passing the signal through a coaxial cable. Losses are the result of resistance, capacitance, and inductance in the cable.

cabling

Connecting wiring to equipment.

CABSC

Canadian Advanced Broadcast Systems Committee. A committee formed to coordinate new standards for high definition television.

CAM

Camera. A television camera.

camera

A generic term meaning the video camera head, containing the lens and pickup tubes, used to focus on and scan a scene. Also refers to completely self-contained cameras in which the entire camera chain is present in one unit.

camera chain

All of the parts of a multi-part camera, including the head, control unit, power supply, etc.

camera control unit (CCU)

A separate electronics frame that supplies power and control to a camera head. The CCU also provides encoding and/or processing of the video signal. Operator controls available at the CCU usually include video levels, color balancing, and iris control.

camera head

The portion of a video camera containing the lens and pickup tubes which focus on and scan a scene.

capacitor

A device that stores electrical energy. It allows the apparent flow of alternating current while blocking the flow of direct current. The degree to which it allows AC current flow depends on the frequency of the signal and the size of the capacitor. Capacitors are used in filters, delay-line components, couplers, frequency selectors, timing elements, voltage transient suppression, etc.

caption

Text or titles to be inserted in video.

caption camera

A camera dedicated to imaging text or titles.

carrier wave

A single-frequency wave which, when transmitted, is modulated by another wave containing information.

cart, cartridge

A device that uses audiotape cartridges for recording or playing back audio. A plastic housing containing a loop of audio tape.

cascaded

Arrangement of two or more circuits in which the output of one circuit provides the input of the next.

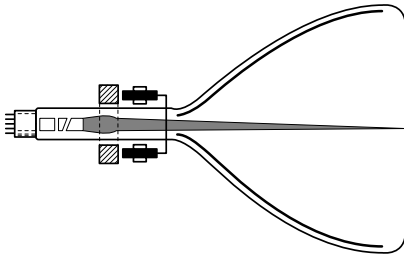
cassette

A self-contained plastic housing holding video or audio tape.

cathode ray tube (CRT)

Picture tube. A tube, usually glass, which is narrow at one end and widens at the other to create a surface onto which pictures can be projected. The narrow end contains circuits to generate and focus an electron beam on the luminescent screen

at the other end. Used to display pictures in TV receivers, video monitors, oscilloscopes, computers, etc.



Cathode Ray Tube

CAV (component analog video)

A video format in which three separate video signals represent luminance and color information. Each signal consists of an analog voltage that varies with picture content. Also called analog component.

CCD

Charge coupled device. A device that stores samples of analog signals. Used in cameras and telecines as an optical scanning mechanism. Advantages include good sensitivity in low light and absence of burn-in and phosphor lag found in CRTs.

CCIR

International Radio Consultative Committee, an international standards committee no longer in operation and replaced by the International Telecommunications Union (ITU).

CCIR-601

See *ITU-R BT.601-2*

CCIR-656

See *ITU-R BT.656*

CCITT

Consultative Committee on International Telegraph and Telephone

CCU

Camera control unit.

centimeter (cm)

One hundredth of a meter (0.01 meter). There are 2.54 cm per inch.

central processing unit (CPU)

The primary data processing section of a computer.

CEPT

Conference of European Posts and Telecommunications Administrations.

CG

Character generator.

CH

Channel.

changeover

See *automatic changeover switch*.

channel

1. A digital effects processing path for video. 2. A particular signal path. 3. A portion of the television broadcast spectrum assigned to a particular broadcasting station.

channel coding

Describes the way in which the 1s and 0s of the data stream are represented on the transmission path.

character generator (CG)

A computer used to generate text and sometimes graphics for video titles.

chassis ground

A connection to the metal frame that holds the electrical components in the system. This connection serves as the ground return or electrical common for the system.

checkerboard assembly

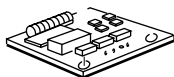
In video editing, a nonsequential method of auto assembly. The computerized editing system records all edits from the videotape playback reels currently in use, leaving gaps that will be filled later by subsequent reels. Also called B-mode assembly. See *auto assembly*.

child window

A subordinate window within a software application.

chip

Informal term for integrated circuit.



Chip

chroma

Chrominance.

chroma crawl

An artifact of encoded video also known as dot crawl or cross luminance. Occurs in the video picture around the edges of highly saturated colors as a continuous series of crawling dots and is a result of color information being confused as luminance information by the decoder circuits.

chroma gain (chroma, color, saturation)

In video, the gain of an amplifier as it pertains to the intensity of colors in the active picture.

chroma key (color key)

A video key effect in which one video signal is inserted in place of areas of a particular color in another video signal. For example, a weatherman stands in front of a blue wall with a camera focused on him. The

camera signal feeds a chroma keyer which detects the blue in the blue wall and replaces it with video from another camera, such as video of a weather map. Thus, the finished key makes the weatherman appear to be standing in front of the weather map.

chroma key aperture

The range of colors accepted by a chroma keyer for use in creating a chroma key. The narrower the aperture, the more color selective the chroma key will be.

chromatic dispersion

See *material dispersion*.

chromaticity

The color aspect of light including hue and saturation, but not intensity. The color perceived is determined by the relative proportions of the three primary colors.

Chromatte™

The chroma keying system used in some GVG digital video switchers.

chrominance

That portion of the video signal which contains the color information (hue and saturation). Video picture information contains two components: luminance (brightness and contrast) and chrominance (hue and saturation).

chrominance/luminance inequality

A video specification that compares delay and gain differences between chrominance and luminance.

chrominance nonlinear gain

An undesirable change in chrominance gain caused by a change in chrominance amplitude. Appears in a TV picture as incorrect color saturation.

chrominance nonlinear phase

An undesirable change in chrominance phase caused by a change in chrominance amplitude. Appears in a TV picture as a shift in hue as the color saturation level increases.

chrominance-to-luminance intermodulation (crosstalk, cross-modulation)

An undesirable change in luminance amplitude caused by superimposition of some chrominance information on the luminance signal. Appears in a TV picture as unwarranted brightness variations caused by changes in color saturation.

CIE colors (Commission Internationale de l'Eclairage)

Colors specified by the International Commission on Illumination which sets standards for illumination including color.

circuit

The interconnection of a number of devices to perform an electronic function.

cladding

The material that encases the core of an optical fiber. May be either glass or plastic. Because the cladding has a lower index of refraction than the core, incident light is confined inside the core and transmitted.

clamp, clamping

The circuit or process that restores the DC component of a signal. A video clamp circuit, usually triggered by horizontal synchronizing pulses, re-establishes a fixed dc reference level for the video signal. Some clamp circuits clamp sync tip to a fixed level, and others clamp back porch (blanking) to a fixed

level. A major benefit of a clamp is the removal of low-frequency interference, especially power line hum.

clean edges

Optimum chroma and luminance transitions that define where one object ends and another begins.

clean edits

Edit transitions that are synchronized accurately in phase and in color frame.

clean feed

An output of a switcher consisting of Program video without any down-stream key.

clear channel capability (CCC)

In telecommunications, DS1 data channels equipped to carry data containing all 0's. Normally done using B8ZS.

clip

1. In keying, the trigger point or range of a key source signal at which the key or insert takes place. 2. The control which sets this action. To produce a key signal from a video signal, a clip control on the keyer control panel is used to set a threshold level to which the video signal is compared. 3. In digital picture manipulators, a menu selection that blanks portions of a manipulated image that leave one side of the screen and "wrap" around to enter the other side of the screen. 4. In desktop editing, a pointer to a piece of digitized video or audio that serves as source material for editing.

clipping level

An electronic limit to avoid overdriving the audio or video portion of the television signal.

clock recovery

clock frequency

The master frequency of periodic pulses that are used to synchronize the operation of equipment.

clock jitter

Undesirable random changes in clock phase.

clock phase deviation

See *clock skew*.

clock recovery

The reconstruction of timing information from digital data.

clock skew

A fixed deviation from proper clock phase that commonly appears in D1 digital video equipment. GVG digital distribution amplifiers handle improperly phased clocks by re-clocking the output to fall within D1 specifications.

clock wipe

A wipe that uses a circular pattern like the hand of a clock.

clone

In GVG editors, to create a new edit file which has parameters copied from an existing edit file.

CMOS (complementary metal-oxide semiconductor)

A semiconductor device consisting of two complementary MOS Field Effect Transistors: a p-channel transistor and an n-channel transistor.

CMR

Common mode rejection.

CMRR

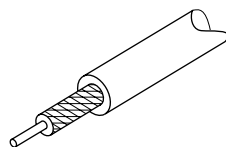
Common mode rejection ratio.

CO

Central office.

coaxial cable

A cable which has a metallic noise shield surrounding a signal-carrying conductor. In television, the cable impedance is 75 ohms.



Coaxial Cable

codec

Coder-decoder. A device that converts analog video and audio signals into a digital format for transmission over telecommunications facilities and also converts received digital signals back into analog format.

coding

Representing each video signal level as a number, usually in binary form.

coefficient

A number (often a constant) that expresses some property of a physical system in a quantitative way.

cold start

To start up a system by turning power on.

color background

A full-field solid color used as a background in a video picture.

color background generator

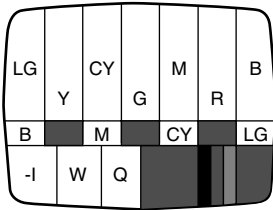
Circuit that generates a full-field solid color for use as a background in a video picture.

color balance

Adjustment of the intensity of each primary color to achieve the best possible representation of the entire color spectrum. White is used as a reference for setting color balance.

color bars

A video test signal widely used for system and monitor setup. Contains bands of color with fixed amplitudes and saturations.



Color Bars

color black

A composite video signal that produces a black screen when viewed on a television monitor. Composite video is a video signal that contains horizontal, vertical, and color synchronizing information.

color black locking

Synchronizing a piece of equipment to a color black video input.

color burst (burst)

Seven to nine cycles (NTSC) or ten cycles (PAL) of subcarrier placed near the end of horizontal blanking to serve as the phase reference for the color signal. Color burst is the reference for establishing the picture color (hue).

color correction

Correction of a video signal for level, hue, and luminance shifts. Performed by a device called a color corrector. Often used in film-to-tape transfer process to accommodate variations in color from different film batches.

color crawl

See *chroma crawl*.

color difference format

A video signal set that includes color difference signals. Betacam and MII, for example, are names of two widely-used color difference formats.

color difference signal

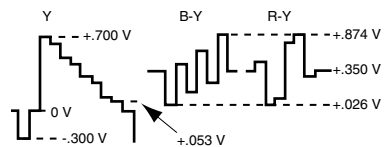
A video color signal made by subtracting luminance and/or color information from one of the primary color signals (red, green, or blue). In the Betacam color difference format, for example, the luminance (Y) and color difference components (R-Y and B-Y) are derived as follows:

$$Y = 0.3\text{Red} + .59\text{Green} + .11\text{Blue}$$

$$R-Y = 0.7\text{Red} - 0.59\text{Green} - 0.11\text{Blue}$$

$$B-Y = 0.89\text{Blue} - 0.59\text{Green} - 0.3\text{Red}$$

The G-Y color difference signal is not created because it can be reconstructed from the other three signals. Other color difference conventions include SMPTE, EBU-N10, and MII. Note that strictly speaking, color difference signals should not be referred to as component video signals. That term is reserved for the RGB color components. Nevertheless, in informal usage, the term component video is often used to mean color difference signals.



Color Difference Signal

color field

In the NTSC system, the color subcarrier is phase-locked to the line sync so that on each consecutive line, subcarrier phase is changed 180° with respect to the sync pulses.

color frame

In the PAL system, color subcarrier phase moves 90° every frame. In NTSC this creates four different field types; in PAL there are eight. In order to make clean edits, alignment of color field sequences from different sources is crucial.

color field sequence

The sequence of color fields that make one complete color frame.

color frame

In color television four (NTSC) or eight (PAL) properly sequenced color fields compose one color frame.

color frame ID (identification)

An identification pulse that indicates the beginning of a complete color frame.

color ramp

A background color that graduates from light to dark or from one color to another. See also *background wash*.

color timing

The synchronization of the burst phase of two or more video signals. Ensures that no color shifts occur in the picture when the signals are mixed in a switcher or other video device.

comb filter

An electrical filter circuit that passes a series of frequencies and rejects the frequencies in between, producing a frequency response similar to the teeth of a comb. Used on encoded video to select the chrominance signal and reject the luminance signal, thereby reducing cross chrominance artifacts, or conversely, to select the luminance signal and reject the chrominance signal, thereby reducing cross luminance artifacts. Comb filtering successfully reduces arti-

facts but may also cause a certain amount of resolution loss in the picture.

combiner

In digital picture manipulators, a device that controls the way in which two or more channels work together. Under software control, it determines the priority of the channels (which picture appears in front and which ones in back) and the types of transitions that can take place between them.

common

A point that acts as a reference for circuits, often equal to ground. In video switchers, for example, tally and GPI relays, when activated, often provide a closure to a common input, which may be ground or some other voltage, such as the voltage used to drive tally lamps.

common carrier

In telecommunications, a government regulated private company that furnishes the general public with telecommunications service facilities.

common mode

Signals identical with respect to amplitude, frequency, and phase that are applied to both terminals of a conductor and/or both the input and reference of an amplifier.

common mode hum

Typically, power line interference which appears on both terminals of a conductor with the same phase, amplitude and frequency.

common mode range

Amplitude of the common mode signal (signal of the same frequency, amplitude and phase) that can be applied to the two differential in-

puts of an amplifier and maintain its performance. See *differential amplifier*.

common mode rejection (CMR)

A measure of how well a differential amplifier rejects a signal which appears simultaneously and in phase at both input terminals. As a specification, CMR is usually stated as a dB ratio at a given frequency.

common mode rejection ratio

1. For a differential amplifier, the ratio of differential gain to common mode gain. 2. Expressed in dB, the ratio of common mode input voltage to output voltage. 3. For an operational amplifier, the ratio of the change in input offset voltage to the change in common mode voltage.

component analog

See *component video*.

component digital

A digital representation of a component analog signal set, most often Y, B-Y, R-Y. The encoding parameters are specified by ITU-R BT.601-2 (CCIR 601). The parallel interface is specified by ITU-R BT.656 (CCIR 656) and SMPTE 125M.

component digital post production

A method of post production which records and processes video completely in the component digital domain. Analog sources are converted only once to the component digital format and then remain in that format throughout the post production process.

component island

A group of component video equipment used within a larger non-component facility.

component video

The unencoded output of a camera, videotape recorder, etc., consisting of 3 primary color signals: red, green, and blue (RGB) that together convey all necessary picture information. In some component video formats, these three components have been translated into a luminance signal and two color difference signals, for example, Y, R-Y, B-Y. See also color difference signal.

composite analog

See *composite video*.

composite digital

A digitally encoded video signal, such as NTSC or PAL video, that includes horizontal and vertical synchronizing information.

composite sync (CS)

A video synchronizing signal that contains horizontal and vertical synchronizing information. Often referred to simply as sync.

composite video

An encoded video signal, such as NTSC or PAL video, that includes horizontal and vertical synchronizing information.

compress

A digital picture manipulator effect where the picture is squeezed (made proportionally smaller).

compression

1. Improper video signal level caused by non-linearity in a circuit's transfer function. Results in lack of detail in either the black or white areas of the video picture. Can also be caused by pointing a video camera at a scene that has a total black-to-white range wider than a standard television signal can handle. 2. Reduction of the size of digital data

conforming

files by removing redundant information (non-lossy) or removing non-critical data (lossy).

compression artifacts

Compacting of a digital signal, particularly when a high compression ratio is used, may result in small errors when the signal is decompressed. These errors are known as "artifacts," or unwanted defects. The artifacts may resemble noise (or edge "busyness") or may cause parts of the picture, particularly fast moving portions, to be displayed with the movement distorted or missing.

conforming

Transferring edit decision list information gathered from an off-line edit to an on-line edit for final assembly.

constant duration mode

The addition of key frames to an existing key frame effect in such a way that the overall length of the effect does not change.

continuity

In digital picture manipulators, the characteristic of location/positioning that determines whether the motion path continues smoothly, without interruption.

contouring

Digital video picture defect caused by quantizing at too coarse a level.

contrast

The range of light-to-dark values of the image which are proportional to the voltage difference between the black and white voltage levels of the video signal. The contrast control is an adjustment of video gain (white bar, white reference).

control bus

In routing switchers, the interconnecting communications path between control panels or devices and the routing matrices.

control panel

A device used for entering operational commands to a device.

control processor

Circuits used to generate or alter control signals.

control room

A room near a television studio where the director and production crew control the show. The control room contains the video switcher, graphics equipment, audio mixer, and banks of video monitors.

control signal

A signal used to perform an alteration of or transition between video signals.

control track

The area on a videotape where frame pulses are recorded.

control track frame pulse

A pulse laid down on videotape by a videotape recorder to identify the frame locations on the videotape. This enables the VTR to lock up correctly framed during playback.

core

In fiber optic cable, the core is the light-transmitting material at the center of the fiber.

coring

A video noise gating operation in which pixels below a predetermined luminance threshold are replaced by "clean" black pixels. Useful in additive keying, where the additive mixer cuts a hole in the background video and adds the entire fill video,

including the black matte surrounding the fill. Coring the fill video before keying substitutes a noise-free black around the fill. During keying, the black regions add nothing to the background and thereby eliminate noise surrounding the fill video that might otherwise add to the background, causing noisy key edges.

cositing

Relates to SMPTE 125M component digital video, in which the luminance component (Y) is sampled four times for every two samples of the two chrominance components (Cb and Cr). Cositing refers to delaying transmission of the Cr component to occur at the same time as the second sample of luminance data. This produces a sampling order as follows: Y1/Cb1, Y2/Cr1, Y3/Cr3, Y4/Cb3, and so on. Cositing reduces required bus width from 30 bits to 20 bits.

coupled mode

Selection of either AC or DC coupling. See *AC coupling*.

coupler

In telecommunications, an optical device used to interconnect optical fibers.

coupling

The manner in which two circuits or systems are connected. Usually this involves either AC or DC coupling.

coupling loss

In telecommunications, the optical power loss incurred in connecting optical fibers.

CPE

Customer premises equipment.

CPU

Central processing unit.

crawl

Text or graphics moving horizontally across the screen.

CRC

Cyclic redundant check.

Cr/Cb

See *Y, Cr, Cb*.

Cr/Cb differential delay

The amount of phase difference between two color difference signals as they travel through parallel circuit paths.

critical area

See *safe title/safe action area*.

crop

In GVG digital picture manipulators, a function which defines the edges of the manipulated image, similar to cropping a photograph.

cross chrominance (cross color)

Moire or rainbow artifacts in an encoded video picture caused when the video encoder or decoder misinterprets luminance detail as color information. Especially noticeable when the talent wears pin-striped clothing.

crossfade

A transition between two pictures where the first picture dissolves to black, and then black dissolves to the second picture.

crosshatch

A video test signal containing a grid pattern used for convergence and linearity adjustments and on-screen alignment of graphics.

cross luminance (dot crawl, chroma crawl)

A video artifact that occurs when the decoder in a monitor or receiver misinterprets areas of high color sat-

uration as luminance information. This causes tiny colored dots to creep along the vertical or horizontal edges of objects.

crosspoint

An electronic switch, usually part of an array of switches, that allows video or audio to pass when the switch is closed.

crosstalk

1. Undesired transmission of signals from one circuit into another circuit in the same system. Usually caused by unintentional capacitive (AC) coupling. 2. Signal interference from one part of a videotape to another.

cue

Video editing term meaning to position a videotape at a specific point.

cue ahead

Video editing term meaning to fast forward or rewind a VTR to the next edit point in preparation for an edit.

current effect

A digital picture manipulation term. The current effect in the register that was last recalled.

current key frame

A digital picture manipulation term. The current key frame for each channel is the key frame in the current effect at which the channel is presently positioned.

current source memory

A digital picture manipulation term. Memory used to retain the most recent source-related parameters for each source.

current time

A digital picture manipulator term. The current time is the current position in the current effect. This time is the "glue" which binds multichannel

effects and is expressed in terms of seconds and frames from the start of the effect. Negative times indicate events before the start of the effect.

cut (take)

A transition between two video pictures which is instantaneous, without any gradual change.

cut bar

On a video switcher, a large push-button that causes a cut between program and preview video when pressed.

D

D1

A component digital video recording format that uses data conforming to the ITU-R BT.601-2 (CCIR-601) standard. Records on 19mm magnetic tape. (Often used incorrectly to indicate component digital video.)

D2

A composite digital video recording format that uses data conforming to SMPTE 244M. Records on 19mm magnetic tape. (Often used incorrectly to indicate composite digital video.)

D3

A composite digital video recording format that uses data conforming to SMPTE 244M. Records on 1/2" magnetic tape.

D5

A component digital recording format that uses data conforming to the ITU-R BT.601-2 (CCIR 601) standard. Records on 1/2" magnetic tape.

D6

Digital HDTV recorder using D1 tape.

DA

Distribution amplifier.

DA

Directory assistance.

DAC (D-A, D/A, D-to-A)

Digital-to-analog converter.

DAL

Dedicated access line.

data compression

A technique that provides for the transmission or storage, without noticeable information loss, of fewer data bits than were originally used when the data was created.

datakey

A plastic, key-shaped memory device containing an EEPROM used for off-line storage.

dB (decibel)

A measure of voltage, current, or power gain equal to 1/10 of a Bel. Given by the equations $20 \log V_{out}/V_{in}$, $20 \log I_{out}/I_{in}$, or $10 \log P_{out}/P_{in}$. See also *Bel*.

dBk

A measure of power relative to 1 kilowatt. 0 dBk equals 1 kW.

dBm

A measure of power relative to 1 mW. 0 dBm equals 1 mW.

dBmv

A measure of voltage gain relative to 1 millivolt at 75 ohms.

dB

This notation expresses the relationship between two program signal levels. It denotes the difference in dB between a measured program signal magnitude and a defined reference magnitude called zero relative level.

DBS

Direct broadcast satellite.

dBu

1. A United Kingdom term that shows comparison between a measured value of voltage and a reference value of 0.775 Volt, expressed under conditions in which the impedance at the point of measurement (and of the reference source) are not considered. 2. dB relative to 1 μ V.

dBV

A measure of voltage gain relative to 1 volt.

dBW

A measure of power relative to 1 watt. 0 dBm equals 1 watt.

DC (dc)

Direct current.

DC component

The portion of a signal that consists of direct current. The average value of a signal.

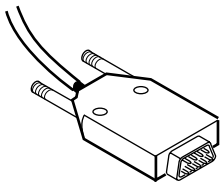
DCC-45 DS3 Digital Cross-Connect Switch

A Grass Valley DS3 digital switching system for video, audio, voice, or T1 or other data.

DC offset

D connector

A type of connector that has a trapezoidal shell resembling a D.



D Connector

DC coupling

A method of coupling one circuit to another so as to transmit the static (DC) characteristics of the signal as well as the varying (AC) characteristics. Any DC offset present on the input signal is maintained and will be present in the output. Some GVG distribution amplifiers may be set for true DC coupling. This method of coupling is the preferred mode for component analog video signals, particularly Y, R-Y, B-Y, which has negative-going energy in the R-Y and B-Y channels.

DC offset

The amount that the DC component of the signal has shifted from its correct level.

DC on blanking level

The absolute DC value of the blanking signal's voltage.

DC restoration

The re-establishment of the DC and low-frequency components of a video signal which have been lost by AC transmission.

DC signal bounce

Overshoot of the proper DC voltage level due to multiple AC couplings in a signal path.

DCT

Discrete cosine transform. A mathematical transformation used in many compression technologies.

DDR

Digital disk recorder. See *disk recorder*.

DDS

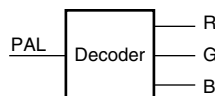
Digital Data Service.

decay trail

See *trail*.

decoder

A device used to recover the component signals from a composite (encoded) source. Decoders are commonly used in monitors and receivers for recovery of RGB signals to drive a color picture tube.



Decoder

dedicated

A control which is assigned to perform only one function, i.e., dedicated to that function, as opposed to delegated to several functions. See also *delegate*.

de-emphasis

Reducing the level of higher audio frequencies during FM reception to compensate for pre-emphasis that was applied during transmission.

default

The setup condition existing when a device is first powered-up.

default channel

A term used for a digital picture manipulator having one or more control panels that can be assigned (delegated) to control any of several

manipulation channels. The default channel is the one to which a control panel is delegated at power-up.

defocus effect

A digital picture manipulation term meaning a controlled blurring of the picture.

degauss

1. To demagnetize (erase) all recorded material on a magnetic medium, such as video or audio tape. 2. To demagnetize the shadow mask in a color picture tube.

degeneration

1. Loss of quality on a videotape typically due to multiple generations of copying the material. 2. To reduce the gain of an amplifier stage by applying negative feedback (feedback that is 180° out of phase) to the input.

delay

The time required for a signal to pass through a device or conductor.

delay line

An electronic component that delays a signal by a specified amount of time.

delay line response error

Frequency loss or overshoot caused by delay lines.

delay distribution amplifier

An amplifier that can introduce adjustable delay into a video signal path.

delegate

To use a single control panel or panel section to control two or more identical devices or functions. For example, a single keyer control panel may control 2 keyers, or a single control panel of a digital picture manipulator can control 2 manipu-

lation channels. A switch selects which of the identical functions the panel is "delegated to" or assigned to control. The reverse is also possible: a single device or function can be delegated to any one of several control panels.

delta (offset)

In effects management systems, a data manipulation technique used in memory systems to allow the settings of control panel analog controls to be different from the analog values applied to the processing software.

demodulator

A circuit that demodulates or decodes the desired signal from amplitude and/or frequency modulation present on a carrier wave.

demultiplexer (demux)

A device used to separate two or more signals that were previously combined by a compatible multiplexer and are transmitted over a single channel.

demux

See *demultiplexer*.

depth mode

A mode in some GVG switchers and digital picture manipulators which automatically defines layering priority. This allows the layer closest to the viewer to automatically cover other layers. Can be used to create "intersecting planes" effects.

deserializer

A device that converts serial digital information to parallel digital.

desktop video

Video editing and production done using standard desktop computing platforms running add-on video hardware and software.

destination

A routing switcher term describing the point to which a source signal is routed.

detector

A device that converts one kind of energy into another. For example, one kind of detector might convert light signals to electrical signals.

detent values

A digital picture manipulation term meaning points to which the picture can be made to snap. For example, when rotating a picture, snap points usually exist in 45° increments so that the operator can easily turn the picture 45°, 90°, etc.

D/I

Drop and insert. A point in the transmission where portions of the digital signal can be dropped out and/or inserted.

diagonal resolution

Picture detail in the diagonal direction versus horizontal and vertical resolution. Many video encoders and decoders sacrifice diagonal resolution in favor of enhanced horizontal and vertical resolution, resulting in blurring.

diagnostics

A program built into a device which tests the functionality of the device and reports the results. Used as an aid in troubleshooting.

DID

Direct inward dialing.

dielectric

A material that does not conduct electricity. An insulator.

differential amplifier

An input circuit that rejects voltages that are the same at both input terminals but amplifies any voltage difference between them. This causes any signal, such as common mode hum, that is present on both sides to cancel itself. This system is used in all GVG 8500 series amplifiers.

differential DC

Maximum DC voltage that can be applied between the differential inputs of an amplifier while maintaining linear operation.

differential gain

A change in subcarrier amplitude of a video signal caused by a change in luminance level of the signal. The resulting TV picture will show a change in color saturation caused by a simultaneous change in picture brightness.

differential input

See *differential amplifier*.

differential looping input

A video input port that allows the signal to be looped through to another input.

differential phase

A change in subcarrier phase of a video signal caused by a change in luminance level of the signal. The hue of colors in a scene change with the brightness of the scene.

digital

Circuitry in which data carrying signals are restricted to either of two voltage levels, corresponding to logic 1 or 0. A circuit which has two stable states: high or low, on or off.

Digital Borderline[®]

See *Borderline[®]*.

digital components

Component video signals that have been digitized.

digital effects

Special effects created using a digital picture manipulator.

digital parallel distribution amplifier

A distribution amplifier designed to amplify and fan-out parallel digital signals.

digital picture manipulator (DPM)

A VGV term for digital video effects systems which can manipulate a video picture to change its size, shape, angle, etc.

digital to analog converter

A device that converts digital signals to analog signals.

digitizing pad (digitizing tablet)

A device that translates drawings from a tablet and stylus to a digital video format.

digital word

The number of bits treated as a single entity by the system.

dim

1. A temporary, usually major, reduction in the level of audio output to monitor speakers. 2. In digital picture manipulators, an effect where the manipulated image tapers off to black or into the background picture.

dip switch (DIP switch)

Dual in-line package switch. A pc module mounted switch package of dual in-line style, typically mounting from two to eight switches and

used in such functions as mode assignment and address selection. director

The person who coordinates all aspects of a live television broadcast from within the control room.

discrete

Having an individual identity. An individual circuit component. A discrete circuit is one that uses individual transistors and other components rather than integrated circuits.

disk recorder

A video recording device that uses a hard disk drive or optical disk drive mechanism. Disk recorders offer nearly instantaneous access to recorded material.

dispersion

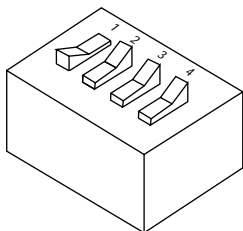
The characteristic of a light-conducting medium that causes the medium to transmit light of different frequencies at different velocities. Dispersion causes the refractive index of a given medium to vary as a function of wavelength. As it relates to optical fiber, this property influences both the effective numerical aperture and the bandwidth of an optical fiber.

dispersion effect

In optical telecommunications, the pulse spreading of an optical signal that takes place when it is transmitted over optical fiber. This effect is caused by the fiber's differing mate-

dissolve (mix, cross fade)

rial index of refraction at the various wavelengths present in the optical signal.



Dip Switch

dissolve (mix, cross fade)

A transition where one source of video or audio is faded down as the other is faded up. See also *effects dissolve*.

distortion

Undesired changes in the waveform of a signal.

distribution amplifier (DA)

A device used to replicate an input signal, typically providing 6 outputs, each of which is identical to the input. May also include delay and/or cable equalization capabilities.

dither

Typically, a random, low-level signal (oscillation) which may be added to an analog signal prior to sampling. Usually consists of white noise of one quantizing level peak-to-peak amplitude.

dither component encoding

A slight expansion of the analog signal levels so that the signal comes in contact with more quantizing levels. The results are smoother transitions. This is done by adding white noise (which is at the amplitude of one quantizing level) to the analog signal prior to sampling.

downlink

The communications path from a satellite to its ground station or from a transmitter to a studio.



Downlink

downstream

Occurring after other devices in a signal path.

downstream keyer

A keyer that inserts the key after the effects system video output. This enables the key to remain on-air while the backgrounds and effects keys are changed behind it.

DPM

Digital Picture Manipulator. The GVG term for video equipment that performs digital effects such as compression and transformation.

drift

Gradual shift or change in the output over a period of time due to change or aging of circuit components. Change is often caused by thermal instability of components.

drive pulse(s) (pulse drives, drives)

A term commonly used to describe a set of signals needed by source equipment, such as a camera. This signal set may be composed of any of the following: sync, blanking, subcarrier, horizontal drive, vertical drive, PAL pulse, and burst flag.

driver

An electronic circuit which supplies input to another electric circuit.

drop-frame time code

SMPTE time code format that continuously counts 30 frames per second but drops 2 frames from the count every minute except for every tenth minute (drops 108 frames every hour) to maintain synchronization of time code with clock time. This is necessary because the actual frame rate of NTSC video is 29.94 frames per second rather than an even 30 frames. See *non-drop frame time code*.

dropout

A momentary loss or deterioration of video or audio during playback on a tape machine. Caused by momentary loss of tape contact with the playback head or by flaws in the tape.

dropout compensator

A circuit within a videotape recorder that detects dropouts and replaces them with information from the previous scan line.

drop shadow

A Borderline[®] mode which places a border below and on one side of a title key insert, giving a shadow effect.

DS0

Digital signal level zero, 64 kbps.

DS1

A telephone company format for transmitting information digitally. DS1 has a capacity of 24 voice circuits at a transmission speed of 1.544 megabits per second.

DS3

A telephone company format for transmitting information digitally. DS3 has a capacity of 672 voice circuits at a transmission speed of 44.736 megabits per second.

DSK

Downstream keyer.

DTMF

Dual-tone multifrequency signaling.

DTS

Digital termination system.

dub

To copy a video signal to tape. To copy one tape to another. A copy of a videotape (noun).

Dubner

A manufacturer of sophisticated video graphic workstations, character generators, and still stores. Now merged with Grass Valley Group.

dumb terminal

A computer display terminal that serves as a conversational slave to a host computer. Has a keyboard for data entry but no computing power of its own.

duty-cycle

1. The ratio of operating time to total elapsed time of a device which operates intermittently, expressed in percent. 2. The ratio of the active time of a repetitive waveform to the full-cycle time, expressed in percent.

DVE

Digital video effects. A registered trademark of Nippon Electric Company. Refers to video equipment that performs digital effects such as compression and transformation.

DVTR

Digital videotape recorder.

Dx

A 1/2" composite digital video tape format.

E**E Series DS3 Digital Video Transmission System**

A cost-effective digital transmission system for video, stereo audio, voice and data made by Grass Valley.

EAGLE V™

A GVG 96 x 10 video-only routing switcher optimized for the security market.

EAV

End of active video in component digital systems.

EBU TECH.3267-E

The EBU recommendation for the parallel interface of 625 line digital video signals. A revision of the earlier EBU Tech.3246-E, which in turn was derived from CCIR-601 and contributed to CCIR-656 standards.

EBU

European Broadcasting Union. An organization of European broadcasters that, among other activities, produces technical statements and recommendations for the 625/50 line television system.

ECL

A family of high speed, low power IC logic devices.

ECSA

Exchange Carriers Standards Association.

EDH

Error detection and handling. Proposed SMPTE RP-165 for recognizing inaccuracies in the serial digital signal. It may be incorporated into serial digital equipment and employ a simple LED error indicator.

EDI

Electronic Data Interexchange.

E-Disk™

Disk storage system for E-MEM effects on some GVG video switchers.

edit controller (editor, editing computer)

A control system (usually computerized) which allows control of videotape machines, a video switcher, and other devices remotely from a single control panel. An edit controller, in conjunction with the other equipment that comprises the complete editing system, enables production of finished video programs which combine video and audio from several different sources.

edit decision list (EDL)

A list of edit decisions accumulated in a video editor. The list typically includes the source, in time, and out time for each edit.

edit mode

In some GVG digital picture manipulators, a mode which allows effects to be created and modified.

edit suite

Room where editing is done.

editing

Production of finished videotape from source tape. Editing usually involves the use of an computer editing system to select scenes and audio from multiple video and audio

sources and record them into a finished program on a single videotape.

editor

An editing system operator. Also the informal term used for an edit controller.

editor interface

A serial communications link between an edit controller and peripheral devices, such as a video switcher and tape machines. The editor interface allows the edit controller to send control commands to the peripherals and receive status reports from the peripherals.

editor port

The interface connector and circuits on a device, such as a switcher, which enable communications with an edit controller.

EDL

Edit decision list.

EDL-XT™

An option package for some GVG edit controllers that includes the 409™ list cleaning program, the Trace™ program for multi-generational editing and first-generation auto assembly, the XEDL™ program for edit list translation and serial input/output, an internal modem, and other disk and file utility programs.

E-E mode

This stands for "electronics to electronics" and is a VTR mode in which the VTR processes the signals that it would normally use during recording but does not actually record onto the tape.

EEPROM

Electrically erasable programmable read only memory. A type of memory chip that can hold data even when power is removed. The memory can be erased electronically so that new data can be stored.

effect file

In digital picture manipulators, a collection of sectors on the disk which represents one complete effect.

effect register

In digital picture manipulators, an area in controller memory representing one complete effect.

effects

The process of combining two or more video images to create a new composite image.

effects dissolve (effects transition)

An automatic smooth transition of analog control settings in a mixer from some initial setting to a different end setting. For example, the position of a pattern or key mask can be moved between programmed points, or the hue of a color matte can be changed in real time, creating a color transition. Similar to a key frame except that only two positions are stored, the beginning and ending positions.

effects memory

The ability of a video production switcher to store and recall effects created on the system by use of computer control techniques. See *E-MEM®*.

effects send

A video switcher feature that allows a key source to be selected at the switcher and then sent to a digital

effects system

picture manipulator for manipulation. The manipulated key and fill video are then returned to the switcher's keyer for keying ("flying" a key) over background video.

effects system

The portion of the production switcher that performs mixes, wipes and cuts between background and/or special effects key video signals.

EFP

Electronic field production, meaning to produce a video production in the field instead of in a studio.

efx

Effects.

EIA

Electronic Industries Association, an American organization that writes recommended practices and standards for television.

eight zero substitution

See *B8ZS*.

electrical length

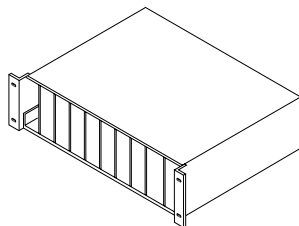
The time it takes for a signal to pass through a given path.

electron beam

A stream of electrons in a cathode-ray (picture) tube which is focused at a phosphorescent screen to create pictures. The beam is directed at its target by deflecting coils or plates. 2. A stream of electrons focused on the light sensitive surface of a camera pickup tube.

electronics frame (tray)

A metal cabinet that holds circuit boards.



Electronics Frame

E-MEM®

1. Effects memory. A memory system invented by GVG for switchers and digital picture manipulators. The E-MEM system stores effects for later recall. 2. An effect learned or programmed into a Grass Valley Group device for later recall.

EMI

Electromagnetic interference. Undesirable electromagnetic waves that are radiated unintentionally from an electronic circuit or device into other circuits or devices, disrupting their operation.

EMPHASYS™

Grass Valley Group product that digitally encodes and decodes color difference or RGB video formats into composite analog or digital (D2) video with a significant improvement in artifact removal.

embedded audio

Digital audio that is multiplexed onto a serial digital video data stream.

enable

To turn on.

encoded chroma key

A chroma key that uses an encoded video signal instead of separate RGB or Y, Cr, Cb signals for deriving the key.

encoded subcarrier

A reference system created by Grass Valley Group to provide exact color timing information. Encoded subcarrier simplifies system timing design when used with devices like STM-85N Source Timing Modules and CBM-85N Color Bar Modules.

encoder

In video, a device that forms a single, composite color signal from a set of component signals.

ENG

Electronic News Gathering, meaning to use a portable video camera and recorder to record news events in the field.

enhancing

Electronically adjusting the quality and sharpness of a video image. May also refer to sweetening audio, for example, by adding laugh tracks and sound effects.

EPLD

Erasable programmable logic device. An IC containing a large number of logic gates whose interconnections are programmable for specific applications. Additionally, the devices can be erased and reprogrammed.

EPROM

Erasable programmable read only memory. A type of memory chip that can hold data even when power is removed. The memory can be erased, usually by ultraviolet light exposure, so that new data can be stored.

EQ

Equalization.

EQ network

A network connected to a circuit to correct or control its transmission frequency characteristics. See *equalization*.

equalization

1. Process of altering the frequency response of a video amplifier to compensate for high-frequency losses in coaxial cable. 2. In audio, to improve the sound quality by increasing or decreasing the gain of the signal at various frequencies.

equalizer

A device that compensates for undesired amplitude-frequency and/or phase-frequency shifts in a signal.

equalizing DA

A distribution amplifier that incorporates cable equalization. GVG offers a broad range of equalizer types to match the characteristics of most popular cables.

equalizing pulses

In an encoded video signal, a series of twice-line-frequency pulses occurring during vertical blanking before and after the vertical synchronizing pulse. Different numbers of equalizing pulses are inserted into different fields to ensure that each field begins and ends at the right time to produce proper interlace. The twice line rate also serves to maintain horizontal synchronization during vertical blanking.

error concealment

In digital video recording systems, a technique used when error correction fails. Erroneous data is replaced by data synthesized from surrounding pixels.

error correction

In digital video recording systems, a scheme that adds overhead to the data to permit a certain level of errors to be detected and corrected.

Error detection and handling

See *EDH*.

escutcheon

A plate that covers an opening, typically in a control panel or electronics frame.

escutcheon mount

A control panel designed to mount into an opening in another control panel.

ESP

Enhanced Service Provider.

essential area

See *safe title/safe action area*

Ethernet

A type of high-speed network for interconnecting computing devices. Ethernet is a trademark of Xerox Corporation, Inc.

ETN

Electronic Tandem Network.

E'U (U)

See *U*.

E'V (V)

See *V*.

event

In videotape editing, a sequence of actions taken by the editing computer and recorded in a single pass.

Event Stacker

An MS-DOS program option used with the GVG MASTER-21™ Master Control Switcher to stack sequences of video, audio, and key events and

load those sources into the Preset bus for transition to the Program bus.

Extended Studio PAL

A 625 line video standard that allows processing of component video quality digital signals by composite PAL equipment. The signal can be distributed and recorded in a composite digital form using D2 or D3 VTRs.

extender board

An adapter board that extends a module outside of its frame to allow easier access to the module's components for troubleshooting and alignment.

external background

Background matte video that is coming from a source outside of the equipment in question.

external fill

Fill video that is coming from a source outside of the equipment in question. See *fill*.

external key

A video key that uses an external key signal (a signal coming from a source outside the device in question) to cut the key hole and a separate fill signal to fill the hole.

external mask

A mask signal that is coming from a source outside of the equipment in question. See *mask*.

external reference

A source of timing information from a source external to the system in question.

external video

A video input signal to the device in question from some external source. Used as a key source and/or fill.

eye pattern

A waveform used to evaluate channel performance in digital video systems.

EZ-LINK™

Industrial quality video transmission over fiber-optic cable. Includes video and audio.

F**F**

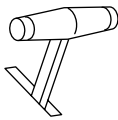
Fahrenheit. Also farad.

fade

The gradual disappearance of a picture to black (fade, fade-out, fade-to-black), or the gradual appearance of a new picture from black (fade-in, fade-up).

fade-to-black

A transition (dissolve) of the video picture to black.



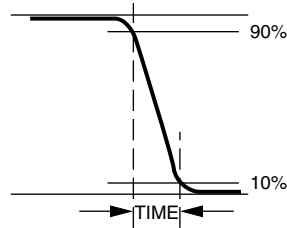
Fader Arm

fader arm (lever arm, fader bar)

Typically a "T" shaped handle that is used for video transitions on a production switcher. Moving the fader arm between two limits of an arc creates a change in voltage or digital data that is used to control the transition.

fall time

The length of time during which a pulse decreases from 90 to 10 percent of its maximum amplitude.



Fall Time

false colors effect

A digital picture manipulator effect that permits user adjustment of colors in the picture.

fan-out (fanout)

(noun) The number of parallel loads within a given IC logic family that can be driven by a single output of a logic device.

fan out

(verb) To drive a number of parallel loads from a single output.

farad (F)

Unit of measure of capacitance.

far end

In telecommunications, the remote end of a communications link.

f-bit

In digital telecommunications transmissions, a framing bit, or sometimes only those framing bits used for synchronization.

FCC

Federal Communications Commission. The executive body that regulates communication in the US.

FDDI

Fiber distributed data interface.

FDM

Frequency division multiplexing.

feed

A television signal source, typically from a remote location, such as a network feed or a satellite feed.

feeder lines

Television cables that distribute signals to various locations.

fiber bundle

A group of parallel optical fibers contained within a common jacket. A bundle may contain from just a few to several hundred fibers.

fiber optics

Use of optical cable to transmit images or signals in the form of light around corners and over distances with extremely low losses.

field

Half of the interlaced horizontal lines (262.5 in NTSC, 312.5 in PAL) needed to create a complete picture. Two interlaced fields create a complete monochrome frame or picture.

field DA

A distribution amplifier designed for use in adverse conditions typically found in remote applications. GVG field DAs incorporate clamping and the ability to equalize exceptionally long cable runs.

field programmable

Capable of being programmed at the customer's site.

field-time linear distortion

An unwarranted change in video signal amplitude that occurs in a time frame of 16 ms.

field upgrade

A product upgrade that takes place at the customer's site.

fill

In video keying, the fill is the video signal that is inserted into the "hole" cut in the background video by a key signal. See *key*.

film chain

An arrangement of a film projector and a video camera to convert a film image into a video signal. A telecine.

film mode

Videotape editing done without time code.

filter

An electrical circuit that passes certain frequencies and blocks other frequencies.

filter artifacts

Defects in the video picture caused by filtering. Most commonly appear as ringing and loss of resolution.

fine H phase

A fine horizontal phase control.

firmware

Programs or instructions that are stored in read-only memories; firmware is analogous to software in a hardware form.

first generation

The first copy of a videotape. A copy of that copy is termed second generation.

flare, camera flare

Color flashes or halos in the video picture caused by too much light shining directly into or reflecting into the camera lens. An adjustment called Flare on some GVG chroma keyers helps remove camera flare from the chroma key foreground.

flash (hit)

Interference or breakup during one field of video or less.

flash EEPROM

A programmable memory IC that can be reprogrammed while it remains in a circuit. Flash memory can usually be reprogrammed many times.

flat level

A signal that has an equal amplitude response for all frequencies within a stated range.

flat panel display

A display device sometimes used in GVG switchers and picture manipulators for displaying menus.

flat response

Output signal amplitude of a system is a faithful reproduction of the input amplitude for some range of specified input frequencies.

flip-flop

1. A video transition where the sources selected on the program and preset buses exchange places at the end of the transition. 2. A digital logic circuit whose output follows the signal present on the input at the time that a clock signal occurs.

flip

A digital picture manipulator transformation which appears to turn the picture around its Y axis.

floor director

The person who directs the cameras and the talent during a live broadcast. The floor director stands in the studio beside the cameras.

flown images

Images that have been compressed and transformed in some way using a digital picture manipulator and which are then keyed over a background scene. The compressed image can be moved around on top of

the background, giving the impression that the image is flying over the background.

flyback (retrace)

The electron beam movement of the camera or television monitor back to the starting point for the next line or field.

flying key

The movement of a keyed insert through a composite image. See *flown images*.

flying a mask

A key mask that is flown with the key. See *flown images*.

FM

Frequency modulation.

foot

Unit of measure of length. One foot equals 12 inches or 0.3048 meter.

forced foreground

A feature of some keyers. Uses a mask to force key fill video to appear wherever the mask occurs and completely inhibit background video. Useful for correcting the poor quality key (mixed background and fill) that results when the keying image is poorly differentiated from other images in the key source picture.

format

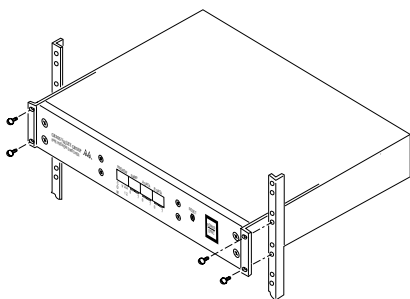
1. In television, the specific form of the signals that make up the video signal. For example, component versus composite format. 2. The organizational method of a particular electronic medium, such as videotape in C format or D1 format. 3. To prepare or pre-program a storage medium, such as a floppy disk, so that it can receive and store data.

format conversion

The process of both encoding/decoding and resampling digital rates to change a digital signal from one format to another.

frame

1. A complete video picture composed of two fields (two complete interlaced scans of the monitor screen). A frame consists of 525 interlaced horizontal lines of picture information in NTSC, 625 in PAL. 2. A metal cabinet (also known as a tray) which holds circuit boards.



Frame

frame buffer

Memory used to store a complete frame of video.

frame lock

Synchronization of the video signal with SMPTE time code.

frame synchronizer

A digital buffer that, by storage, comparison of sync information to a reference, and timed release of video signals, can continuously adjust the signal for any timing errors.

free-run

Condition in which a sync generator is not locked to any outside source but is providing sync on the basis of its own internal clock.

free-run stability

The accuracy of a sync generator's output during free-run.

freeze

In digital picture manipulators, the ability to stop or hold a frame of video so that the picture is frozen like a snapshot.

freeze frame

The storing of a single frame of video.

frequency

The number of complete cycles of a periodic waveform that occur in a given length of time. Usually specified in cycles per second (Hertz).

frequency division multiplexing

A method of transmitting two FM carriers of different center frequencies by combining them and transmitting them as a composite.

frequency modulation (FM)

Modulation of a sine wave or "carrier" by varying its frequency in accordance with amplitude variations of the modulating signal.

frequency response

A measure of how effectively a circuit or device passes signals of different frequencies applied to it.

frequency response rolloff

A distortion in a transmission system where the higher frequency components are not conveyed at their original full amplitude.

front porch

The blanking signal portion which lies between the end of the active picture information and the leading edge of horizontal sync.

front timing

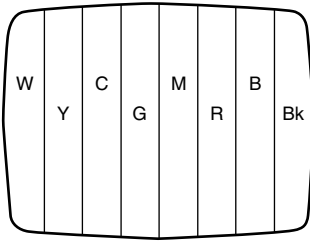
In video editing, to calculate a clock time by adding running times of the edits to the show start time.

FTB

Fade-to-black.

full field color bars

A test signal using color bars which extend from the top to the bottom of the raster.



Full Field Color Bars

fusion splice

A means of joining optical fibers together.

fx

Effects.

FX

Foreign Exchange Service.

G

Gain

Any increase or decrease in strength of an electrical signal. Gain is measured in terms of decibels or number-of-times of magnification.

gain/frequency distortion

A circuit defect in which a change in frequency causes a change in signal amplitude. When this happens to a television signal, it can cause serious

distortions in color saturation, as well as a lack of vertical line resolution due to luminance pulse ringing.

gamut

The range of valid voltages allowed for a video signal, or a component of a video signal. Signal voltages outside of the range (i.e., exceeding the gamut) may lead to clipping, crosstalk, or other distortions.

gate

1. A signal used to trigger the passage of other signals through a circuit. 2. A digital logic device whose output state depends on the states of the logic signals presented to its inputs.

gate array

A set of basic logic gates contained in one integrated circuit.

GBR (green, blue, & red; RGB)

The three primary colors used in video processing, often referring to the three unencoded color camera outputs. The GBR letter sequence indicates the mechanical sequence of connectors in the SMPTE standard.

general purpose interface (GPI)

1. A parallel interconnection scheme that allows remote control of certain functions of a device. One wire per function. 2. May also refer to any non-specific interface between equipment. Usually refers to a serial connection (RS232 or RS422 format) between computer modules.

generation

A copy. A first generation copy is a copy of the master tape. A second generation copy is a copy of the first generation copy.

generation loss

Losses caused by copying from one videotape to another.

gen-lock (genlock)

To phase-lock the timing of one piece of equipment to another.

gen-lockable master

A main facility sync pulse generator that is capable of locking to an outside source of video.

gen-lock module

A module that can phase-lock to another source of video or sync.

ghost

In a television picture, a duplicate image offset from the main picture image.

GHz

Gigahertz. One thousand megahertz.

glitch

A general term used for a wide variety of momentary signal discontinuities, such as tears, rolls, momentary loss of picture, etc.

global channel, global control

In digital picture manipulators, allows an object constructed of separate layers, each from individual channels, to be manipulated as one layer.

GPI

General purpose interface.

graded index fiber

An optical fiber in which the core has a continually changing refractive index.

granularity

The smallest unit size available for a particular routing system. For example the granularity of a router may be 16 x 16, meaning that additional routing capacity must be added in minimum units of 16 x 16.

graphics display

A standard video output of the Kadenza or Kaleidoscope system showing wire frames of Kaleidoscope transformations. This is used to aid operators in quickly building multi-layered effects.

Graphics Factory Halo

A Grass Valley video graphics system featuring dimensional video typography, designer painting, and 3D modeling and animation.

gray scale

Range of luminance levels from black to white.

green

One of the three primary color signals (red, green and blue) produced by cameras and other video sources.

greenie

Nickname for a brand of small screwdriver having a green handle, sometimes used for calibrating video equipment.

ground loop

A condition when two or more paths to ground exist and a voltage is induced unequally in these paths, causing interference, such as hum, buzz, or noise.

group delay

A signal defect caused by different frequencies having differing propagation delays (delay at 1 MHz is different from delay at 5 MHz). In the television picture, delay between the chrominance and luminance components of the video signal causes an object's color to shift outside the object's outline and also causes ringing in the luminance component.

H

H

Henry. Also hexadecimal (H or h).

H

Horizontal. In television signals, may refer to any of the following: 1. The horizontal period or rate. 2. The horizontal line of video information. 3. The horizontal sync pulse.

H & V lock time

The length of time it takes for a device to lock to horizontal and vertical sync.

H blanking width

The width in terms of time occupied by horizontal blanking. The period of time from the end of active video of one line to the beginning of active video of the next line. During this time, the electron beam in a camera or monitor is turned off as it returns or retraces to the other side of the raster to begin a new scan.

H drive (horizontal drive)

A pulse used to trigger the next horizontal line. Generally a 2-4 volt negative-going pulse that typically starts at the beginning of horizontal blanking and ends at the trailing edge of sync.

H lock time

The length of time it takes for a device to lock to horizontal sync.

H phase

1. The horizontal phase relationship of one piece of equipment to another for studio timing purposes. 2. The phase of horizontal sync in relation to subcarrier. See *SC/H phase*.

Hanover bars

An undesirable artifact of interlaced scanning that looks like line-crawling venetian blinds.

hard black clip

Stops the composite video going below a predetermined level.

hard disk

A digital data storage device using a rigid, magnetic disk.

hard white clip

Stops the composite video going above a predetermined level.

hard-wired

1. Electrical devices connected through physical wiring. 2. Electronic programming technique using physical connections and therefore essentially unalterable.

harmonic

A periodic wave having a frequency that is an integral multiple of the fundamental frequency. For example, a wave with twice the frequency of the fundamental frequency is called the second harmonic.

harmonic distortion

The production of harmonics at the output of a circuit when a periodic wave is applied to its input. The level of the distortion is usually expressed as a percentage of the level of the input.

HDTV

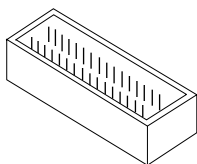
High definition television.

head end

The central point where cables originate in a cable distribution system.

header

A type of connector typically having a rectangular body made of plastic insulating material through which connecting conductor pins protrude.



Header Connector

henry (H)

Unit of measurement of inductance.
hertz

Unit of measurement for the number of cycles of a waveform in one second. Cycles per second.

hi-con

High contrast, meaning high contrast video used as a key source.

high frequency (HF)

The frequency bands from 3 to 30 MHz.

high frequency loss

Loss of signal amplitude at higher frequencies, caused for example, by passing a signal through a coaxial cable.

high impedance loop-through

See *high Z looping input*.

high level language

Any symbolic computer language that controls a computer via commands that are similar to human language as opposed to the numbers used in machine language.

high tally

Control panel button is lit to full brightness (as opposed to dim), usually to indicate that the signal is on air.

high Z looping input

A high impedance input circuit which also includes an output to enable routing the signal to another piece of equipment.

hold-out matte

Area of a key where matte occurs behind the key.

hole cut

See *key*.

horizontal drive

See *H drive*.

horizontal (blanking) interval

The time period between lines of active video.

HORIZON™

A Grass Valley Group line of routing switchers capable of handling a large number of inputs and outputs.

horizontal line

A single horizontal scan of a camera or CRT beam. A number of these video scans together form a frame of video. There are 525 interlaced lines per frame in NTSC, 625 in PAL.

horizontal period

The length of time for a complete horizontal line of video information.

horizontal phase

See *H phase*.

horizontal resolution

Chrominance and luminance resolution (detail) expressed horizontally across a picture tube. This is usually expressed as a number of black to white transitions or lines that can be

differentiated. Limited by the bandwidth of the video signal or equipment.

horizontal retrace

At the end of each horizontal line of video, a brief period when the scanning beam returns to the other side of the screen to start a new line.

horizontal sync pulse

The synchronizing pulse at the end of each video line that determines the start of horizontal retrace.

house reference

See *house sync*.

house sync

Television sync generated within the studio and used as a reference for generating and/or timing other video signals.

hue (tint, phase, chroma phase)

One of the characteristics that distinguishes one color from another. Hue defines color on the basis of its position in the spectrum—i.e., whether red, blue, green, or yellow, etc. Hue is one of the three characteristics of television color: See also *saturation* and *luminance*. In NTSC and PAL video signals, the hue information at any particular point in the picture is conveyed by the corresponding instantaneous phase of the active video subcarrier.

hum bars

Horizontal black and white bars that extend over the entire TV picture and usually drift slowly through it. They are caused by a power line interfering frequency or one of its harmonics.

hum-bucker

1. A circuit (often a coil) that introduces a small amount of voltage at power line frequency into the video path to cancel unwanted AC hum.

hum rejection

In circuits, the ability to cancel interference in a video or audio signal, often at the 50 or 60 Hz power line frequency.

hum suppression

The cancellation of power line hum. See *hum-bucker*.

hybrid circuit

A circuit that looks very much like a subminiature printed circuit board and is composed of a mix of thick film and surface mounted components. Hybrids make possible improved performance, extended reliability, and economy of space. Use of hybrids permits design of equipment such as entire processing amplifiers (GVG 7510 Series) on single PC modules.

Hz

Hertz.

I

I

A designator used to name one of the color components of the NTSC video signal. The formula for deriving I from red, green, and blue is $.60R - .28G - .32B$. The term I also designates an M-Format color component.

IC

Integrated circuit.

icon

In desktop computing and editing, a graphic symbol that represents a file, a tool, or a function.

ID

Identification.

idling current

The current drawn by a circuit, such as an amplifier, when no signal is present at its input.

IMD

See *intermodulation distortion*.

impedance

The total of the resistive and reactive opposition, measured in ohms, that a circuit presents to the flow of alternating current at a given frequency.

inbetweening (key frame interpolation)

Given two or more key frames, inbetweening is the act of generating the intermediate field rate information to cause the image to change from one key frame to the next.

inch

Unit of measure of length. One inch equals one twelfth of a foot or 25.4 millimeters.

index of refraction

The ratio of the velocity of light in a vacuum to the velocity of light in a given medium.

init page

A menu for setting the proper editing system operating conditions at the start of an edit session.

injection laser

A solid state semiconductor device consisting of at least one p-n junction capable of emitting coherent or

stimulated radiation under specified conditions. The device incorporates a resonant optical cavity.

in-point

The beginning of an edit; the first frame that is recorded.

input return loss

See *return loss*.

input selector

A routing switcher or auxiliary bus used to expand the number of video or key inputs that can feed an input of a digital picture manipulator or keyer. Many keyers only accept one key source and fill, but by connecting an input selector to those inputs, many more source and fill signals become available just by selecting crosspoints on the input selector.

input-looping

A device's input loops back out so that the incoming signal can be sent elsewhere.

insert

A key fill signal.

insert edit (insert mode)

An edit mode in which the time code and control track already existing on the record tape are not replaced during the editing process. The system edits using the pre-recorded control track and time code.

insert event

A GVG editor command that takes an edit in the Mark Table and puts it into the Edit Decision List just after the line being pointed to.

insertion loss

Signal loss within a circuit. Usually expressed in decibels as the ratio of input power to output power.

integrated circuit

An electronic device in which both active and passive circuits are contained in a single miniature multi-pin package.

intensity modulation (IM)

Used in fiber optics as a method of transmission in which the analog signal directly modulates the light source.

interface

Device or circuit used to interconnect two pieces of equipment.

interlaced

Short for interlaced scanning. Also called line interlace. A system of video scanning whereby the odd- and even-numbered lines of a picture are transmitted consecutively as two separate interleaved fields.

intermodal dispersion

A difference in propagation time of photons traveling on different paths in an optical fiber.

intermodulation distortion (IMD)

Distortion that results when two or more pure tones produce new tones with frequencies representing the sum and/or difference of the original tones and their harmonics.

interpolation

In digital video, the creation of new pixels in the image by some method of averaging the values of neighboring pixels. This is necessary when an image is digitally altered, such as when the image is expanded or compressed.

in-time

The time of edit start.

I/O

Input/output. Typically refers to sending information or data signals to and from devices.

IP

Information provider.

IRE (Institute of Radio Engineers)

Units of measurement dividing the area from the bottom of sync to peak white level into 140 equal units. One-hundred-forty IRE equals 1 volt peak-to-peak. The range of active video is 100 IRE.

ISDN

Integrated Services Digital Network.

iso

In videotaping, to record the output of each camera in a multiple-camera shoot on its own separate VTR.

ISO

International Standardization Organization.

isophasing amplifier

A timing device that corrects for small timing errors.

ITU

International Telecommunications Union. An international broadcast standards committee that replaced the CCIR.

ITU-R BT.601-2

Formerly known as CCIR 601. An international standard for component digital television from which was derived SMPTE 125M (was RP-125) and EBU 3246E standards. This International Telecommunications Union (ITU) recommendation defines the sampling systems, matrix values, and filter characteristics for both Y, B-Y, R-Y and RGB component digital television.

ITU-R BT.656

Formerly known as CCIR 656. The physical parallel and serial interconnect scheme for ITU-R BT.601-2 (CCIR 601). ITU-R BT.656 defines the parallel connector pinouts as well as the blanking, sync, and multiplexing schemes used in both parallel and serial interfaces. Reflects definitions in EBU Tech 3267 (for 625 line signals) and in SMPTE 125M (parallel 525) and SMPTE 259M (serial 525).

IXC

Interexchange carrier.

J

jack

A socket or receptacle into which a mating plug is inserted in order to make an electrical connection.

jitter

1. An undesirable random signal variation with respect to time. 2. In Kaleidoscope, a function that causes a rapid alternation between field one and field two until a command is received to advance to the next frame. Used for certain digital recording devices that play one complete frame and then record one complete frame.

jog, jogging

Process of moving the videotape forward or backward one field or frame at a time.

JOGGER™

A GVG trademarked name for the jog control on GVG editors.

JOG-PAD™

A GVG trademarked name for a touch-pad jog control on GVG editors.

joystick

An electromechanical stick, similar to the control stick on an aircraft, used for hand positioning of graphic images on a video or computer monitor. For example, in video switchers a joystick is used for positioning wipe patterns.

JPEG

A still image compression standard developed by the ISO Joint Photographic Experts Group.

jump cut

In videotape editing, a jarring cut from one scene to another; discontinuity.

jumper

A short piece of wire used to complete a circuit temporarily or to bypass a circuit. Also, a shorting jack.

K

K

Kelvin.

k

Kilo. One thousand.

kA

Kiloampere.

KADENZA™

A Grass Valley Group digital video switcher with layering and image manipulation capabilities.

KALEIDOSCOPE™

A Grass Valley Group digital effects system.

KALEIDOSCOPE™ Channel

Hardware capable of processing one layer of video with all of the Kaleidoscope video features including 3-D transformations and Kaleidoscope special effects (wipes, keys, recursive effects, mosaics, etc.).

key

1. Also called key source or key cut. A signal that can be used to electronically "cut a hole" in a video picture to allow for insertion of other elements such as text or another video image. The key signal is a switching or gating signal for controlling a video mixer which switches or mixes between the background video and the inserted element. 2. The composite effect created by cutting a hole in one image and inserting another image into the hole.

key accumulation

Simultaneous use of more than one key source and/or fill in a single keyer.

key auto drop

A keyer feature that allows automatic removal of a downstream key from air by pressing an appropriate crosspoint pushbutton.

key breakaway

See *key split*.

key bus

A video switcher crosspoint bus used to select key sources (hole cutters) and/or key fills. Signals available to the key bus are typically the same sources and fills that are supplied to the other switcher crosspoint buses plus additional external key sources and fills.

key channel

A channel of a digital picture manipulator that is used for manipulating key signals while the corresponding key fill video is manipulated by another channel.

key clip and gain

See *clip* or *gain*.

key cut

See *key*.

key edger (Borderline®)

A device or circuit that produces border effects around the edges of a key.

keyer

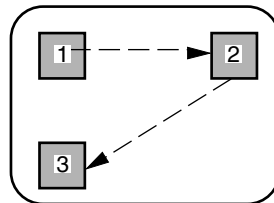
An electronic circuit that creates a control signal to control a video multiplier based on selective information contained in a video signal.

key fill

In key effects, the video signal that is said to "fill the hole" cut in the background video by the key source.

key frame (keyframe)

An effect that has been stored in memory, similar to a snapshot photograph. Individual key frames can be strung together to create an overall key frame effect, which is similar to animation.



Key Frame Effect

key frame current effect space

The memory space used to store a key frame effect as you create or edit it.

key frame effect

An overall effect consisting of a series of effects snapshots called key frames. When the overall effect is re-played, the machine (switcher, DPM, etc.) automatically and gradually dissolves from one key frame to the next. A process called inbetweening defines what happens between key frames. The result is a moving animation effect.

keying

See *key*.

key invert

A luminance key mode that inverts the polarity of the key source to allow dark areas of the source video to cut holes in the background instead of bright areas. A chroma key mode that inverts the foreground and background positions.

KeyLink™

A video switcher feature that allows a key source to be selected at the switcher and then sent to a digital picture manipulator for manipulation. The manipulated key and fill video are then returned to the switcher's keyer for keying ("flying" a key) over background video.

key mask

See *mask*.

KEY-MEM®

A Grass Valley Group effects memory storage system that saves E-MEM effects onto a removable EEPROM shaped like a key.

key memory

The memorized key clip, gain, and key type selections for each key source.

key mix

A keyer feature that alternately fades a key in over background video or fades it out.

key modifiers

Control functions on a keyer that permit alteration of the key in some way, such as shadow, invert, mask, and edge effects.

key priority

A function that determines which key appears on top in video switching/keying systems having multiple keyers all on-air at the same time.

key separate

See *key breakaway*.

key source

The signal that is said to "cut a hole" in the background scene for a key effect. This signal controls a video mixer that switches between the background scene and the fill video; thus, the key source determines the shape of the key effect.

key split

A video switcher key mode in which one key bus button selects the hole cutter and a different key bus button selects the fill video. Also called split key or key breakaway.

key video

The key fill, key source, or both.

K factor

A specification rating method that gives a higher factor to video disturbances that cause the most observable picture degradation.

kHz (kilohertz)

One thousand hertz.

kilobaud (kbaud)

A unit of measurement of data transmission speed equalling one thousand baud. See *baud*.

kilobyte (kb)

One thousand twenty-four (1024) bytes (2^{10}).

kilogram

Unit of measure of weight. One kilogram equals 2.20 pounds.

kilohm (k ohm, kΩ)

One thousand ohms.

K-Mask™

GVG name for a switcher Mask Bus, which allows signals from the wipe, key, and mask rectangle generators to cumulatively modulate (modify) wipes, keys, or mattes. Allows users to build custom key masks from a variety of sources.

KRYSTAL™ Digital Effects System

A digital picture manipulator made by GVG.

Kurl™

An option to the GVG Kaleidoscope™ Digital Picture Manipulator that provides such effects as page turns, page rolls, ripples, slits, and spheres.

kV

Kilovolt.

kVA

Kilovoltampere.

L**LADT**

Local Area Data Transport.

Lamina™ Video Compositing

A feature of some GVG switchers that enables four video layers to be composited in one mix/effects. This composite image can then be used as a key source or a background in another mix/effects or the downstream keyer.

LAN

Local area network.

lap dissolve

See *background mix*.

laser diode

A junction diode that emits electromagnetic radiation or light when injected electrons under forward bias recombine with holes in the vicinity of the junction. Used to transmit light signals over fiber optic cables. The term laser is an acronym derived from light amplification by stimulated emission of radiation.

laser exciter

Supplies a signal that modulates a laser driver in a laser-driven communication system.

Last-X

An undo function included in some GVG E-MEM® systems. In video switchers, the Last-X register continuously stores the switcher setup before the last E-MEM register recall. Pressing the Last-X pushbutton recalls the switcher to the setup that existed before the last E-MEM recall. This provides quick recovery from accidental E-MEM recalls.

LATA

LATA

Local access and transport area.

latch

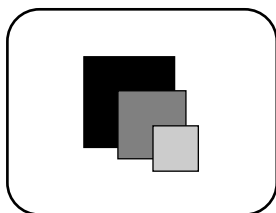
An electronic circuit that holds a digital signal once it has been selected. To latch a signal means to hold it.

layer

A single video image that is processed so that it can be inserted into the final composite image. There may be other layers in the image, and they can be prioritized as to layer location.

layering

Combining several video images to create a complex effect. With GVG digital switchers, multiple layer effects can be created in one recording pass.



Layering

launch power

The amount of light actually coupled into an optical fiber from the light source. This is typically expressed in dbm or microwatts.

LBO

Light build out. A telecommunications term meaning to simulate cable loss to maintain the required signal template.

leading edge

The transition of a pulse that occurs first, such as the positive-going transition of a high clock pulse.

learn

The act of storing control panel data (effects setups) into a memory register of an E-MEM system.

LEC

Local Exchange Carrier.

LED

Light emitting diode.

lens

1. The clear plastic cover on a push-button. 2. The focusing mechanism of a camera.

level

1. The intensity of an electrical signal. 2. In routing switchers, an independently controllable stratum of signals within a routing switcher. Typically, a routing switcher will have a level of video and one or more audio levels. 3. A mix/effects (M/E) section of a video production switcher.

lever arm (fader arm)

Typically a "T" shaped handle attached to a pair of potentiometers or shaft encoders. Used for manual video transitions on a video switcher or digital picture manipulator. Moving the lever arm between two limits of an arc creates a change in voltage or digital data that is used to control the transition.

light-emitting diode (LED)

A pn junction device that emits light when biased in the forward direction.

light modeling

A digital picture manipulator function that provides three-dimensional control of light sources in order to create lighting for objects.

lightning display

A method of presentation on a component video waveform monitor that displays luminance and color difference video signals to permit measuring their gain and timing.

light receiver

A photodiode used for receiving optical signals.

level setting

Adjustment of video or audio signal levels.

limiter

An electronic device in which some characteristic of the output is automatically prevented from exceeding a predetermined value.

line

See *horizontal line*. See *program output*.

linear

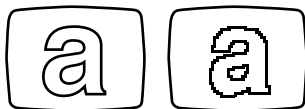
1. Having an output that rises or falls in direct proportion to the input. 2. A straight-line motion path for objects in digital effects devices.

Linear Borderline®

Keyer feature that allows key edge effects to be added to linear keys.

linear key

A luminance key effect in which the gain of the key is approximately one, preserving the shaping of key source edges produced by anti-aliased character generators and digital video effects devices. Linear keying using anti-aliased sources produces smooth key edges.



LINEAR VS NON LINEAR

Linear Key

linear keyer

A keyer that does linear keys.

linear pulse distribution amplifier

Linear pulse DAs amplify and fan-out the signal and will handle up to 4V p-p signals (pulses).

line cord

AC power input cable.

line-cord retention hardware

Safety hardware that keeps the power cord from being pulled out of its connections.

line driver

See *driver*.

line monitor

See *program monitor*.

line output

See *program output*.

line-time

Occurring during a horizontal line of the video picture.

line time linear distortion

An unwarranted change in video signal amplitude that occurs in a time frame between 1 and 20 μ s. The result is a gradual left-to-right shading of the TV picture.

line voltage

The voltage level of the main power source to a device.

link

1. A communication path between sites, such as a satellite link or a microwave link. 2. An E-MEM® mode of operation where registers are recalled in numerical order every time a transition is performed.

link source

link source

Those Master 21 preset and program sources through which inputs from an expansion router are mapped.

list cleaning

The process of revising an edit decision list to correct duplicate or overlapping edits so that over-recordings are eliminated.

list management

Editor functions that give you the ability to change the edit decision list.

LMS

Local measured service.

local aux bus

An auxiliary switching bus contained within the control panel of a video switcher, as opposed to a remote auxiliary bus panel.

local loop

In telecommunications, a communications channel between a subscriber and a local company.

location

In digital picture manipulators, a transform that allows movement of the picture along the X and Y axes.

lock

To synchronize two or more signals. See *gen-lock*.

logical channel

In digital picture manipulators, there may be several physical manipulation channels, each of which can be independently assigned to any one of several control panels. If physical channel 2 is the first channel assigned to a control panel, it becomes logical channel 1 for that panel. Thus, logical channels are a method of numbering manipulation channels based on the order in

which channels are assigned to a control panel rather than on the physical number of that channel in the electronics frame.

log time

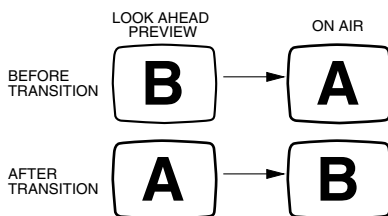
That time at which a new source is placed on the program bus, usually recorded in the station log for FCC accounting and customer billing purposes.

long haul

Long distance communications.

look ahead preview (preview)

The output of a switcher that allows you to observe an effect before it is placed on-air.



Look Ahead Preview

loopback

A test of transmission capability in which a signal is transmitted through a loop that returns the signal to the source. The test verifies the ability of the source to transmit and receive.

loop-through (loop-thru, looping)

A type of video input circuit that provides two or more input connectors. One connector accepts the video input signal for use within the device in question, and the other connector provides a tap off of the input for routing the input signal to another piece of equipment.

loss budget

1. The amount of anticipated signal loss over a given fiber optic path, including attenuation, connector loss, splice loss, and other losses. 2. The amount of signal loss fiber optic transmission equipment can sustain before exceeding the operating specifications.

low frequency chrominance response

A TV picture anomaly in which a change in time (1 μ s to 60 μ s) causes a change in chrominance amplitude. The picture shows unwarranted saturation variations from left to right.

low-pass filter

A filter network that passes all frequencies below a specified frequency with little or no loss but that discriminates strongly against higher frequencies.

low tally

Dim lighting of a control panel button. Usually indicates that a source or function is selected but not currently on air.

LSB

Least significant bit. The bit that has the lowest value in a binary number or data byte.

LSI

Large scale integration.

lum, luma

Luminance.

luminance

The measurable, luminous intensity of a video signal. Differentiated from brightness in that the latter is non-measurable and sensory. The color video picture information contains two components: luminance (brightness and contrast) and

chrominance (hue and saturation). The photometric quantity of light radiation.

luminance border

A non-color, luminance-only fill video for key borders and drop shadows.

luminance key

A key effect in which the portions of a key source that are greater in luminance than the clip level cut a hole in the background video.

luminance nonlinearity

A TV picture anomaly in which a change in luminance amplitude causes a change in luminance gain. The picture shows poor resolution between brightness levels in the nonlinear range.

M**M**

Mega. One million.

m

Milli. One one-thousandth (1/1000).

M-format

A component video format invented by Panasonic for use in videotape recorders. The signal set consists of separate Y, I, and Q signals. The M refers to the way in which the tape is routed through the recording mechanism.

MII format

A second-generation component video format invented by Panasonic for use in videotape recorders. The signal set consists of separate Y, scaled R-Y and scaled B-Y signals.

The M refers to the way in which the tape is routed through the recording mechanism.

mA

Milliampere. One one-thousandth of an ampere. (0.001 ampere).

MAC

Multiplexed Analog Component video. This is a means of time multiplexing component analog video down a single transmission channel such as coax, fiber or a satellite channel. Usually involves digital processes to achieve the time compression.

machine language

A computer language consisting of code numbers that serve as direct instructions for controlling a computer. Machine language is the lowest level of computer language.

machine room

A room near a studio and control room where the tape machines and electronics frames associated with the video switching and graphics equipment are located.

Macintosh®

An Apple® brand computer used in desktop video production.

macro

A function that provides a one-key-stroke streamlined operation in place of a procedure having many keystrokes.

MAG

Magnitude. Also magnify.

magnitude (MAG)

Related to switcher wipe rotation.

MAN

Metropolitan area network.

manipulation

In a digital picture manipulator, the various processes used to alter a video image, such as transformations and programmed effects.

mark in

To select the point where an edit will begin (the first frame that will be recorded).

mark out

To select the point where an edit will end (the first frame that will not be recorded).

mark table

A list of edit in and out points and the sources to be used.

mask

A key mode that allows use of a wipe pattern, a box shape, or an external mask signal to prevent some undesirable portions of the key source from cutting a hole in the background. The key occurs only in the area covered by the mask pattern; areas not covered by the mask pattern consist entirely of background video (no key).

mask bus

Hardware unique to the Kadenza switcher which provides the K-MASK features, including modification of wipes, keys, and mattes.

mask invert

A keyer mode similar to mask except that the sense of the mask is inverted so that the key appears only in the area not covered by the mask pattern. The area covered by the mask pattern will consist entirely of background video (no key).

master

1. An original recording (video or audio tape, for example) as opposed to a copy. 2. In the Master 21

switcher, those customer-defined parameters entered during system setup.

MASTER Interactive Distance Learning System

A fully interactive teaching and conferencing system for multiple schools and classrooms made by Grass Valley.

MASTER 21™

A Grass Valley Group master control switcher.

master control system

The switching link for video and audio sources used between a television facility and a transmitting device.

master reference synchronizing pulse generator (master SPG)

A synchronizing pulse generator that is the precision reference for an entire teleproduction facility.

MASTER SYSTEM™

Grass Valley Group interactive distance learning system that uses a variety of telecommunications equipment.

master timing

The main sync pulse generator used as the reference for any number of slave generators. A facility should have only one active master sync generator to feed synchronizing signals around the facility.

master/slave

1. In editing, the process in which one or more VTRs (slaves) are controlled by another VTR (master). 2. In sync generators, the process in which several sync generators (slaves) are controlled by one main sync generator (master).

match

In editing, a command that calculates the match frame for the time specified in the R-VTR's mark table IN column.

match-frame edit

An edit in which a scene already recorded on the master is continued with no apparent interruption.

material dispersion

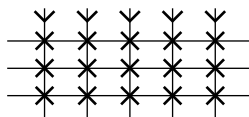
A characteristic of fiber optic transmission in which the velocity of light through a glass fiber varies with wavelength of the transmitted signal. Material dispersion can impair the bandwidth, information carrying, and distance capability of the system.

matrices

Plural of matrix.

matrix

A logical network configured in a rectangular array of intersections of input-output leads. In routing switchers, a signal switching frame configured such that any frame input may be selected at any frame output. In a color television set or an encoded chroma keyer, the section that combines the luminance and color signals and transforms them into individual red, green, and blue signals. In the TV set, these signals are then applied to the picture-tube grids. In the encoded chroma keyer, these signals are used to generate a chroma key.



Matrix

matte

A solid color signal that may be adjusted for chrominance, hue, and luminance. Matte is used to fill areas of keys and borders.

matte background

A solid color created from a matte generator and used as a background for a key.

matte copy

In video switchers, the ability to copy the settings of one matte generator to another.

matte fill

Matte video used to fill the hole in a key effect.

matte generator

A video generator that produces a solid-color output which can be adjusted for hue, chroma and luminance.

matte key

A key effect in which the inserted fill video is created by a matte generator.

MAU

Medium access unit. A device for connecting equipment to an ethernet network.

mbps

Megabits per second. Digital transmission speed in millions of bits per second.

MCF Video Transmission System

A fiber optic multichannel digitized video and audio transport system made by Grass Valley.

M/E

Mix/effects.

meter

Unit of measure of length. One meter equals 3.28 feet or 39.37 inches.

mezzanine

A printed circuit board that mounts on top of another printing circuit board to form a sandwich or stack. Sometimes called a submodule or daughterboard.

megabyte (Mbyte)

One million bytes (actually 220 or 1,048,576); one thousand kilobytes.

megahertz (MHz)

One million Hertz.

megohm (Meg, MΩ)

One million ohms.

megawatt (M)W

One million watts.

MFJ

Modification of final judgement.

micro (μ)

One one-millionth (1×10^{-6}).

microampere (μA)

One millionth of an ampere (1×10^{-6} or 0.000001 ampere).

microprocessor

An IC package incorporating logic, memory, control, computer and/or interface circuits.

microsecond (μs)

One millionth of a second (1×10^{-6} or 0.000001 second).

microvolt (μV)

One millionth of a volt (1×10^{-6} or 0.000001 volt).

microwatt (μW)

One millionth of a watt (1×10^{-6} or 0.000001 watt).

microwave

A term applied to waves in the frequency range of 1000 megahertz and upward.

Miller squared coding

A DC-free channel coding scheme used in D2 VTRs.

milli

One one-thousandth (1/1000).

millimeter (mm)

One thousandth of a meter (0.001 meter). There are 25.4 mm per inch.

millisecond (ms)

One thousandth of a second (0.001 second).

millivolt (mV)

One thousandth of a volt (0.001 volt).

milliwatt (mW)

One thousandth of a watt (0.001 watt).

mix (dissolve, crossfade)

A transition between two video signals in which one signal is faded down as the other is faded up.

mix/effects (M/E)

A subsystem of a video production switcher where a composite of two or more images can be created. Each M/E typically includes crosspoint buses, keyer(s), and mixer.

mixer

1. European term for production switcher. Complete term is vision mixer. 2. A circuit which can mix two or more video signals. 3. An audio console for combining audio sources.

MML

Man-machine language. A programming language that allows a user direct programming access to machine functions.

modal dispersion

See *intermodal dispersion*.

modem

A device that transforms a typical two-level computer signal into a form suitable for transmission over a telephone line. Also does the reverse—transforms an encoded signal on a telephone line into a two-level computer signal. Modem is an acronym for modulator/demodulator.

modulator

A circuit that modifies a carrier wave by amplitude, phase, and/or frequency.

module

A printed circuit board or assembly that contains electronic components and slides into a cell.

module extender

See *extender board*.

moire

In video, a wavy pattern that appears as an artifact in the picture. Caused by two high frequency signals in the picture that mix together to create a visible low frequency beat pattern.

monitor

1. In video, a device that directly displays a video picture from a camera, videotape recorder, or special-effects generator. 2. A verb meaning to watch or listen to a signal.

mono-black

See *monochrome*.

monochrome

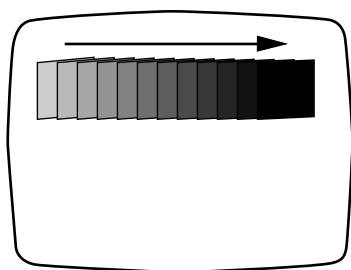
Black and white video. A video signal that represents the brightness values (luminance) in the picture, but not the color values (chrominance).

monolithic

1. A single slice of silicon substrate on which an integrated circuit is built. 2. Elements or circuits formed within a single semiconductor substance.

montage effect

In digital picture manipulators, a recursive effect that develops over time. A composite picture made up of several different key frame pictures. See *multifreeze*.



Montage Effect

MOS

Metal-oxide semiconductor. A type of semiconductor material used in ICs.

mosaic effect

In digital picture manipulators, an effect where the picture seems to be made up of a number of small squares or tiles.

motherboard

A circuit board that accommodates plug-in cards or daughterboards and makes interconnections between them. May also provide cable input/output connections.

motion artifacts

Defects in the video picture that are evident during motion.

motion decay

A digital picture manipulator effect in which objects in motion are blurred.

motion estimation

An image compression technique that achieves compression by describing only the motion differences between adjacent frames, thus eliminating the need to convey redundant static picture information from frame to frame. Used in the MPEG standards.

MPEG 1, MPEG 2

Compression standards for moving images conceived by the Motion Pictures Expert Group, an international group of industry experts set up to standardize compressed moving pictures and audio.

multifreeze

A digital picture manipulator key frame effect in which a number of images are arranged on the screen to create a montage.

ms

Millisecond. One-thousandth of a second (0.001 second).

MSA

Metropolitan service area.

MSB

Most significant bit. The bit that has the most value in a binary number or data byte.

MS-DOS

A computer operating system developed by Microsoft for IBM personal computers and compatibles.

MSO

Multiple system operator.

MTS

Message telecommunications service.

multiformat

Ability to process multiple signal types, such as standard digital, analog component, and analog composite inputs and outputs.

multilayering

Layering of several video sources together at one time. This can reduce the number of recording passes required to create a complex effect of many layers.

multilayer effects

A generic term for a mix/effects system that allows multiple video images to be combined into a composite.

multichannel mode

A method of control panel delegation in which the panel is in control of more than one channel of a digital picture manipulator.

multimode effect

An effect that results from the difference in time required for different light signals to traverse the length of a multimode optical fiber.

multimode fiber

An optical fiber with a relatively large core diameter anywhere between 25 and 200 microns in which more than one mode of light propagation takes place.

multiplex

1. To transmit two or more signals at the same time or on the same carrier frequency. 2. To combine two or more electrical signals into a single, composite signal.

multiplexer (mux)

Device for combining two or more electrical signals into a single, composite signal.

multiplication

1. In switchers, the duplication of wipe patterns. Instead of one pattern, multiple patterns all of the same shape appear on screen. 2. Signal mixing that takes place within a multiplier circuit.

multiplicative key

Method of keying that uses a multiplier controlled by a key signal to key a fill video signal into a background video signal. The key signal shapes the fill and background into complementary shapes that fit together to make a composite image. See also *multiplier*.

multiplied effect, multimove

In digital picture manipulators, an effect in which multiple copies of the picture are produced.

multiplier

A control circuit in which a control signal is multiplied with one or more video signals. The resulting video output signal is a mix of the input video signals. The ratio of the mix is determined by the control signal. A typical formula governing the output of a video multiplier is $XY + (1-X)Z$, where X is the control signal and Y and Z are the video inputs.

mute

A mode that turns off the audio output to the monitor speakers. Used when a microphone is in the same room as the monitor.

mV

Millivolt. One one-thousandth of a volt (0.001 volt).

mW

Milliwatt. One one-thousandth of a watt. (0.001 watt).

N

NAM (non-additive mix)

1. A transition between two video signals in which the signal with the highest instantaneous amplitude is passed. 2. Addition of two or more video signals in a circuit in which the signal with the largest instantaneous amplitude is passed.

nano

One one-billionth (1×10^{-9}).

nanometer

1×10^{-9} meter. Used in telecommunications as a measurement of signal wavelength.

nanosecond (ns)

One billionth of a second: 1×10^{-9} or 0.000000001 second.

narrow-band

1. A communications channel of less than full voice grade. 2. A frequency band whose width is greater than 1 percent of the center frequency and less than one-third octave.

narrow blanking width

An adjustment of the width of blanking used in the early stages of video production that allows for a wider than normal image area. The blanking width is later widened to normal, which in effect, crops the image area horizontally and produces a visually cleaner edge.

NCTE

Network channel terminating equipment.

NDF

Non-drop frame mode.

near end

In telecommunications, the local end of a communications link.

negative NAM (non-additive mix)

Addition of two or more signals in a circuit in which the signal with the lowest instantaneous amplitude is passed.

network

1. The affiliation of television or radio stations such as ABC, CBS, NBC, CBC, BBC, etc. 2. A combination of electrical elements, such as a group of interconnected computers.

neutral colors

The range of grey levels, from black to white, but without color. For neutral areas in the image, the RGB signals will all be equal; in color difference formats the color difference signals will be zero.

NICAM

Near instantaneous companded audio multiplex. A digital audio coding system originally developed by the BBC for point-to-point links. A later development, NICAM 728 is used in several European countries to provide stereo digital audio to home television receivers.

noise

Unwanted disturbance within an electronic system. Interference present in a video picture.

nominal

The most common value for a conductor or component that falls between maximum and minimum limits of a tolerance range.

non-additive mix

See *NAM*.

noncomposite video

A video signal that includes blanking but no sync.

non-condensing

In GVG equipment specifications, refers to atmospheric humidity that has remained in vapor form and has not turned to liquid where it contacts equipment surfaces. (GVG specifications usually permit humidity up to 90%, non-condensing.)

non-drop frame time code

SMPTE time code format that continuously counts a full 30 frames per second. Because NTSC video does not operate at exactly 30 frames per second, non-drop frame time code will count 108 more frames in one hour than actually occur in the NTSC video in one hour. The result is incorrect synchronization of time code with clock time. Drop frame time code solves this problem by skipping or dropping two frame numbers per minute except at the tens of the minute count.

non-linear encoding

Relatively more levels of quantization are assigned to small amplitude signals, relatively fewer to the large signal peaks.

nonlinearity

Having a gain varying as a function of signal amplitude.

non-sequential assembly

See *checkerboard assembly*.

non-sync detector

A circuit that detects when two video signals are not synchronous.

non-volatile

A memory system whose stored data is undisturbed by removal of operating power.

normalling jacks (through-connection)

Jacks that, when not acting as inputs or outputs, return the signal to its normal path by way of an internal spring connection inside the jack. (TV and portable radio earphone jacks are usually normalling.)

notch filter

An arrangement of electronic components designed to attenuate a specific frequency band. Also called a "band stop filter."

NPRM

Notice of proposed rulemaking.

NRZ

Non-return to zero. A data stream in which the logic level remains a 1 during transmission of consecutive data 1's.

NRZI

Non return to zero inverse. A video data scrambling scheme that is polarity insensitive. 0 = no change in logic; 1 = a transition from one logic level to the other.

ns

nanosecond.

NTIA

National Telecommunications and Information Agency.

NTSC

National Television Systems Committee. Organization that formulated standards for the NTSC televi-

sion system. Now describes the American system of color telecasting which is used mainly in North America, Japan, and parts of South America. NTSC television uses a 3.579545 MHz subcarrier whose phase varies with the instantaneous hue of the televised color and whose amplitude varies with the instantaneous saturation of the color. NTSC employs 525 lines per frame and 59.94 fields per second.

numerical aperture

A number that defines the light gathering ability of a specific fiber. The numerical aperture is equal to the sine of the maximum acceptance angle.

Nyquist frequency (Nyquist rate)

The lowest sampling frequency that can be used for analog-to-digital conversion of a signal without resulting in significant aliasing. Normally, this frequency is twice the rate of the highest frequency contained in the signal being sampled.

O

OB

Outside broadcast. A remote broadcast.

OB truck/van

A mobile truck, van, or trailer that houses a remote broadcast switching and control center for broadcasting news and sports.

Off-air

1. Signals that are not currently going out to broadcast or videotape recording. 2. Signals received "out of the air" from a transmitter. To record signals off the air.

off-line

Not in use. Inactive.

off-line editing

Editing that is done using inexpensive, non-broadcast-quality equipment to produce an edit decision list (EDL) which will be used later for assembling a broadcast-quality program using more expensive, high-quality equipment.

ohm (Ω)

The unit of resistance. The electrical resistance between two points of a conductor where a constant difference of potential of 1 volt applied between these points produces in the conductor a current of 1 ampere, the conductor not being the source of any electromotive force.

Omni-Key™

Grass Valley Group trademarked name for the keying system used in the Model 300 switcher.

ONA

Open network architecture.

on-air

The video signal in question is being broadcasted or videotaped. In Kaleidoscope, a portion of a channel's picture is on screen or its output is being combined with another digital effects processor to create the final video output.

on-edge switching

A digital picture manipulator term meaning to switch input crosspoints (video sources) when the back (hidden) side of a double-sided trans-

formed image rotates to the front and the front (visible) side rotates to the back. The switching occurs at the moment when only the edge of the image is visible.

on-line

In use. Active.

on-line editing

Final editing session in which the finished program master is assembled from the original production material.

one-shot (monostable multivibrator)

A circuit that produces an output signal of fixed duration when an input signal of any duration is applied.

on-the-fly

Setting edit points while VTRs are rolling. A non-precision method of editing similar to live video switching.

open-ended edit

Edit that has a start time but no designated out-point. An edit that runs until stopped by the operator.

operating program

The program (software or firmware) that controls a computer's functions.

optical waveguide

An optical fiber with a high refractive index clad with a material having a lower index of refraction.

optoisolator

A coupling device consisting of a light emitter and a photodetector used to couple signals without any electrical connection. Used for voltage and noise isolation between input and output while transferring the desired signal.

orbit

A transform which causes an object to move in a circle around a point on the X-Y grid.

ORing diodes

Diodes arranged in such a way as to construct an OR gate.

orthogonal sampling

Sampling of a line of repetitive video signal in such a way that samples in each line are in the same horizontal position.

oscillator

An electronic device that generates alternating-current at a frequency determined by the values of the components in its circuits.

OSI

Open systems interconnection.

OSO

Originating service office.

OTDR

Optical time domain reflectometer. A device that tests losses in optical fiber.

out-point

An edit out-point. The first frame that is not recorded (after the end of an edit).

out-time

Edit out-point timing.

output

The current, voltage, power, or driving force delivered by a circuit or device.

output impedance

The impedance a device presents to its load. The impedance measured at the output terminals of a transducer

output return loss

with the load disconnected and all impressed driving forces taken as zero.

output return loss

See *return loss*.

output stage

In electronic equipment, the final stage that produces the finished output signal(s).

output to output isolation

The ratio of attenuation provided by the output stage to an interfering signal driving one output compared to a second output. The ratio is measured at the second output. A good specification protects output signals against incorrect cabling, such as accidental untermination or double termination.

outside broadcast

A remote broadcast, typically from a remote truck.

ovenized crystal oscillator (OXO)

A crystal oscillator that is surrounded by a temperature regulated heater (oven) to maintain a stable frequency in spite of external temperature variations.

over

1. In audio or video, a signal that is superimposed over a second signal. Also called voice over in audio. 2. In video switchers, a selection that determines which key layer appears on top of the other key layer in a mix/effects.

overscan

A video monitor condition in which the raster extends slightly beyond the physical edges of the CRT screen, cutting off the outer edges of the picture.

overshoot

The first maximum excursion of a pulse beyond the 100% level. That portion of a pulse that exceeds its defined level temporarily before settling to the correct level. Overshoot amplitude is expressed as a percentage of the defined level. See also *ringing*.

OXO

Ovenized crystal oscillator.

P

packing fraction

The area in a fiber optic fiber bundle occupied by the core material, expressed as a fraction of the total bundle area.

PAL

Phase Alternate Line. The name of the color television system in which the E_v component of burst is inverted in phase from one line to the next in order to minimize hue errors that may occur in color transmission. PAL-B (also called PAL-I) is a European color TV system featuring 625 lines per frame, 50 fields per second, and a 4.43361875 MHz subcarrier. Used mainly in Europe, China, Malaysia, Australia, New Zealand, the Middle East, and parts of Africa. PAL-M is a Brazilian color TV system with phase alternation by line, but using 525 lines per frame, 60 fields per second, and a 3.57561149 MHz subcarrier.

PAL

Programmable array logic. An IC containing a large number of logic gates whose interconnections are programmable for specific applications.

PAL ID (PAL identification)

The control signal that indicates where the phase inversion of the E'V component takes place in PAL video signals.

PALplus

A transmission standard for 16:9 625 line signals.

panorama

A digital effect that enhances a vanishing point effect by applying curvature to the parallel lines of video extending away from the viewer.

parallel cable

A multi-conductor cable carrying simultaneous transmission of digital data bits. Analogous to the rows of a marching band passing a review point.

parallel data

Transmission of data bits in groups along a collection of wires (called a bus). Analogous to the rows of a marching band passing a review point. A typical parallel bus may accommodate transmission of one 8-, 16-, or 32-bit byte at a time.

parallel digital

A digital video interface which uses twisted pair wiring and 25-pin D connectors to convey the bits of a digital video signal in parallel. There are various component and composite parallel digital video formats.

parallel video mixer

Video mixing architecture where two identical sets of multipliers are used to create a multilevel effect.

parallel video processing

A mixing architecture where the outputs of several video multipliers are summed to create a composite effect.

parity

1. A method of verifying the accuracy of transmitted or recorded data. An extra bit appended to an array of data as an accuracy check during transmission. Parity may be even or odd. For odd parity, if the number of 1's in the array is even, a 1 is added in the parity bit to make the total odd. For even parity, if the number of 1's in the array is odd, a 1 is added in the parity bit to make the total even. The receiving computer checks the parity bit and indicates a data error if the number of ones does not add up to the proper even or odd total.

patch panel

A manual method of routing signals using a panel of receptacles for sources and destinations and wire jumpers to interconnect them.

path length (propagation delay)

The time it takes for a signal to travel through a piece of equipment or a length of cable.

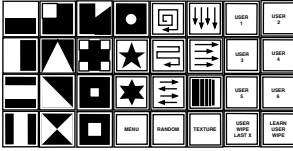
path

In digital picture manipulators, the values of the field rate information produced by in-betweening two key frames. Visually, the path corresponds to the motion route that the image on the screen takes to move from one key frame to the next. May also include size changes, picture rotation, etc.

pattern

pattern

In a production switcher, a variety of geometric shapes called patterns are available that can be used for wipe transitions, key masks, etc.



Patterns

pattern border

A variable-width border that occurs at the edges of a wipe pattern. Typically, the border can be filled with matte video from a border matte generator.

pattern control

In production switchers, the group of controls used for selecting and modifying wipe patterns.

pattern limit

See *preset pattern*.

pattern mix

In video switchers, a special wipe edge modulation effect produced by summing a matrix pattern and an analog pattern together.

pattern modulation

An oscillation or modulation of the vertical and/or horizontal dimensions of a wipe pattern edge.

pattern positioning

In video switchers, moving a wipe pattern using a joystick.

pattern selector pushbuttons

In a production switcher, the push-buttons used to select wipe patterns.

Pb

See Y, Pr, Pb.

PBX

Private branch exchange.

PCB (printed circuit board)

An insulating board onto which a circuit has been printed or etched.

PCN

Personal communications network.

PCS

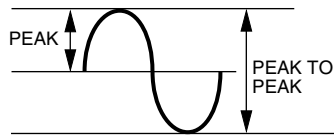
Personal communications service.

peak

The point of highest amplitude of a waveform or voltage.

peak-to-peak (p-p)

The amplitude (voltage) difference between the most positive and the most negative excursions (peaks) of an electrical signal.



Peak to Peak

pedestal

1. In the video waveform, the signal level corresponding to black. Also called setup. 2. A pulse (usually with a flat peak) that elevates the base level of another waveform.

PEGS

In GVG editing systems, a tool that provides for timed execution of programmed motion, E-MEM recall, GPI events, or character generator strings.

PERFORMER™

A GVG wideband 10 x 1 routing switcher.

peripheral bus

A serial communications bus between a master controlling device and peripheral or slave devices. The master sends out commands to remotely control the peripherals.

personality programming

Feature of some Grass Valley Group equipment that lets the user customize the default settings.

perspective

A digital picture manipulator effect that modifies an object's shape in order to create the illusion of disappearing points.

PEVL cable

A type of telecommunications cable.

PGM

Program. The on-air crosspoint bus of a video or audio switcher. The final on-air output signal of video or audio equipment.

phase (chroma phase, hue, tint)

The relative timing of a signal in relation to another signal. If the time for one cycle of a signal is represented as 360° along a time axis, the phase position for the second signal is called phase angle expressed in degrees. The subcarrier phase of TV colors can be adjusted and this changes the hue of the colors themselves.

phase distortion

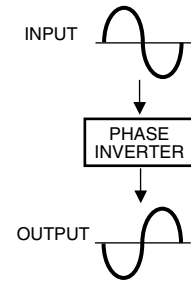
A picture defect caused by unequal delay (phase shifting) of different frequency components within the signal as they pass through different impedance elements—filters, amplifiers, ionospheric variations, etc. The defect in the picture is “fringing” (like diffraction rings) at the edges where the contrast changes abruptly.

phase error

A picture defect caused by the incorrect relative timing of a signal in relation to another signal.

phase inversion

The condition whereby the output of a circuit produces a wave of the same shape and frequency but 180° degrees out of phase with the input.



Phase Inversion

phase lock

The phase of a signal follows exactly the phase of a reference signal.

phase locked loop (PLL)

A circuit containing an oscillator whose output phase or frequency locks onto and tracks the phase or frequency of a reference input signal. To produce the locked condition, the circuit detects any phase difference between the two signals and generates a correction voltage that is applied to the oscillator to adjust its phase or frequency.

phasing

Adjusting the delay of a video signal to match a reference video signal. This includes horizontal and subcarrier timing.

phase shift

The movement in relative timing of a signal in relation to another signal.

PIC

PIC

Primary interexchange carrier.

pick-off

Sample point of a signal.

pico

1×10^{-12} .

picofarad (pF)

1×10^{-12} farad.

PIN

Positive-intrinsic-negative. A type of semiconductor material used to build diodes with fast switching characteristics. See also *positive-intrinsic-negative photodiode coupler*.

pink signal (pink panther)

In telecommunications, a video test signal that produces pink when viewed on a monitor.

pixel

The smallest distinguishable and resolvable area in a video image. A single point on the screen. In digital video, a single sample of the picture. Derived from the words picture element.

pixmark

In desktop editing, a single frame of video that serves as an icon to represent a particular video clip.

planes

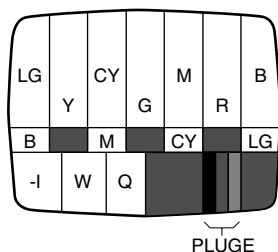
In video effects, levels of imagery contained in a composite effect.

PLD

Programmable logic device. An IC containing a large number of logic gates whose interconnections are programmable for specific applications.

PLUGE (black set)

Picture line-up generation equipment. Used for aligning monitors and other video devices. In some versions of color bars, PLUGE is the black set at the bottom of the red bar that contains bars that are blacker than black, black, and whiter than black. Used to adjust monitor brightness by watching the PLUGE so that the whiter than black bar is just visible and both the black and blacker than black bars are no longer distinct.



Pluge

p.m.

Post meridiem.

POP

Point of presence.

port

A connection point between a computer and other hardware devices.

positioner

A joystick control that allows a wipe pattern or manipulated image to be moved and/or sized within the active picture area.



Positioner

positioning a picture

See *location*.

photodiode coupler

A coupling device that enables the coupling of light energy from an optical fiber or cable onto the photosensitive surface of a positive-intrinsic-negative (PIN) diode of a photon detector at the receiving end of an optical-fiber data link.

posterize, posterization

A digital video effect where all possible colors are converted to a smaller number of colors, removing gradations and creating color steps to produce a poster effect.

post production

The editing process after the video footage has been shot. See *production house*.

postroll

To continue to roll videotape for some number of frames after the out-point during an edit preview. Useful in viewing how well the edit was performed.

post space

In some GVG digital picture manipulators, the two-dimensional space in which the X-axis translates the image left and right, the Y-axis moves the image up and down, and Z-axis controls the 2-dimensional image size.

potentiometer (pot)

A resistor that has a variable contact so that a portion of the potential applied between its ends may be selected.

POTS

Plain old telephone service.

pound (lb.)

Unit of measure of weight. One pound equals 0.453592370 kilogram.

p-p

peak-to-peak.

Pr

See *Y, Pr, Pb*.

PRBS

Pseudo-random bit stream. A telecommunications test signal.

preamplifier

An amplifier that raises the gain of a low-level signal so that it may be further processed without appreciable degradation in the signal-to-noise ratio.

pre-equalization (pre-emphasis)

To emphasize certain frequencies in a signal, usually before transmission, in order to improve the signal-to-noise ratio or to reduce distortion of the signal.

pre-lasing condition

The condition of an injection laser corresponding to the emission of predominantly incoherent or spontaneous radiation.

pre-plans

In telecommunications, a pre-stored list of connect commands that can be implemented by a single MML statement.

pre-regulator

A regulator used to deliver reduced voltage to all amplifier modules to ensure cooler operation.

preroll

A specific amount of time allowed for tape machines to run prior to an edit in order to get them up to speed and synchronized for the edit. In preparation for the edit, tapes are

preselection

cued to a point ahead of the edit point to provide a proper preroll. The amount of preroll required varies with each type of VTR.

preselection

In video switchers, to make a crosspoint selection prior to performing a transition that will take the selection to air.

presentation switcher

Another term for "master control switcher" used in Europe and some other countries outside the U.S. There are minor differences applicable to the specific area of use.

preset

1. To select a video source in preparation for taking it to air. 2. A source selected on the preset bus or the action of selecting a source on the preset bus.

preset bus

In video and audio switchers, a row of crosspoint pushbuttons used to select the video or audio input that will be placed on-air during the next background transition. Also called preset background bus.

preset black

A transition mode in which one video signal is faded to color black before the other video signal is faded up.

preset pattern

An effect in which a wipe pattern that has been preset to a size limit by the user becomes the key source (cuts the key hole). The characteristics of the pattern are set using the pattern controls.

preset wipe

See *preset pattern*.

Presto character generators

A series of affordable, high quality character generators made by Grass Valley.

preview

1. To rehearse an edit without recording it. 2. To look at a video effect before taking it to air.

preview bus

The crosspoint bus used for selecting the signal that will appear at the preview output of a switcher.

preview output (look ahead)

The output of the switcher that allows you to observe an effect before it is placed on-air.

PRI

Primary rate interface.

primary colors

A small group of colors that, when combined, can produce a broad spectrum of other colors. In television, red, green, and blue are the primary colors from which all other colors in the picture are derived.

primary inputs

The main video inputs applied to the crosspoint buses of a switcher.

priority

In video mixers and manipulators, the position of a layer of video relative to other layers. Layer A is said to have priority over Layer B when Layer A is placed on top of Layer B. See also *layering*.

processing amplifier (proc amp)

A device that stabilizes the composite video signal, regenerates the synchronizing pulses and color burst, and can make other adjustments to the video signal.

production element

In desktop editing, the building blocks of a video production, including clips, effects, transitions, and graphics.

production house

Also known as post production house. A facility that typically does everything to generate final video productions except shooting of original videotape. Services typically include editing raw master tapes, modifying, creating new effects, and correcting. Projects typically include advertising, training, promotion, music videos, and television shows and movies.

production switcher

A device that allows transitions between different video pictures. It may also contain a special effects generator.

professional video

A video production market segment that includes educational, corporate, military, and small commercial producers of video programs.

program

1. The on-air crosspoint bus of a video or audio switcher. 2. The on-air output signal of video or audio equipment. 3. A sequence of instructions used to tell a computer how to receive, process, store, and transfer information.

program bus

In video and audio switchers, a row of crosspoint pushbuttons used to select the on-air video or audio background output of the switcher or mix/effects. Also called program background bus.

program monitor

A video monitor dedicated to displaying the program output of a device or studio.

program (PGM) output

The on-air or final output of a switcher or other device, or a studio.

program/preset mixer

A video mixing system that combines two crosspoint buses with a video mixer. On live production switchers, a program/preset mixer is usually included following the mix/effects and includes pushbuttons for selecting the output of each mix/effect.

program video

See *background video*.

programmable general purpose interface (GPI)

An interconnection scheme (usually serial) that allows remote control of certain selectable functions of a device by some other device that can be programmed to select the desired functions.

PROGRAMMED MOTION™

A trademarked GVG editor feature that allows control of VTR speed during editing.

PROM

Programmable Read Only Memory. A ROM that can be programmed by the equipment manufacturer (rather than the PROM manufacturer).

prompt

A cue to help the operator choose the next action.

Pronto Affiliate ID System

A Grass Valley system for playing network promos while keying effects, animations, and affiliate ID

propagation delay

logos into the network signal under control of either the network or affiliate.

propagation delay (path length)

The time it takes for a signal to travel through a circuit, piece of equipment, or a length of cable.

protect

A control panel function that locks a source-to-destination configuration so that other control panels may not change that configuration.

protocol

A set of conventions governing the format and timing of message exchanges to control data movements and correct errors.

P/S

Power supply.

PSC

Public Service Commission.

PST

Preset.

PST PTN

Preset pattern.

PUC

Public Utilities Commission

pulse

A change in voltage that has identifiable beginning and ending points. A momentary deviation from and return to a constant voltage level.

pulse count

A method of editing in which the system counts control track pulses to find locations on the tape.

pulse delay distribution amplifier

A device used to replicate an input timing signal, typically providing 6 outputs, each of which is identical to

the input signal but shifted in time by as little as a few nanoseconds to as much as a microsecond or more.

pulse distribution amplifier

A device used to replicate an input timing signal, typically providing 6 outputs, each of which is identical to the input signal. May also perform cable equalization or pulse regeneration.

pulse drives

A set of signals needed by some source equipment for timing purposes. The signal set may be composed of any of the following: sync, blanking, subcarrier, horizontal drive, vertical drive, burst flag, and burst gate/PAL pulse.

pulse edge

The leading or trailing edge of a pulse is defined as the 50% point of the pulse rise or fall.

pulse fall time

The interval of time required for the edge of a pulse to fall from 90% to 10% of its peak amplitude.

pulse level

The voltage amplitude of a pulse.

pulse regenerator

Device which accepts reference color black or another composite color video input and processes it to produce sync, blanking, subcarrier, and burst flag (PAL only) reference pulses.

pulse rise time

The interval of time required for the leading edge of a pulse to rise from 10% to 90% of its peak amplitude.

pulse spreading

The widening of the input optical signals as they traverse the length of a fiber. Caused by the fact that dif-

ferent frequencies of light traverse the path at different velocities. This property limits the useful bandwidth of the fiber. Usually expressed in nanoseconds per kilometer.

pulse to bar

A K-factor (distortion) measurement using a T pulse and bar video test signal. See also *T-pulse to bar*.

pulse width

The interval measured between the 50% amplitude points of the leading and trailing edges.

PVN

Private virtual network.

PVW

Preview.

Q

Q

A designator used to name one of the color components of the NTSC composite video signal. The formula for deriving Q from red, green, and blue is $.21R - .52G + .31B$. The Q term also designates a color component of an M-Format component video signal.

quadrature

A 90° (one quarter cycle) phase difference between two signals.

Quad Split Generator

An option to GVG switchers that splits the screen into four sections, each section containing a different video source.

quantizing error

Inaccuracies in the digital representation of an analog signal. These errors occur because of limitations in the resolution of the digitizing process.

quantizing noise

The noise (deviation of a signal from its original or correct value) which results from the quantization process. In serial digital video, a granular type of noise that occurs only in the presence of a signal.

quantization

The process of sampling an analog waveform to convert its voltage levels into digital data.

quiescent current

See *idling current*.

R

rack

An equipment rack. In video, a standard equipment rack is 19 inches (48.26 cm) wide at the front. Most video equipment is designed to fit into a standard rack.

rack unit (RU)

Unit of measure of vertical space in an equipment rack. One rack unit is equal to 1.75 inches (4.45 cm). The height of a GVG electronics frame is typically specified in rack units.

RAM (random access memory)

A temporary, volatile memory into which data can be written or from which data can be read by specifying an address.

ramp

A video test signal that graduates from low luminance to high luminance used to measure luminance linearity.

raster

1. A predetermined pattern of scanning the screen of a CRT. 2. The illuminated area produced by scanning lines on a CRT when no video is present.

rate conversion

1. The process of converting from one digital sample rate to another. The digital sample rate for the component digital video format is 13.5 MHz. For the composite digital video format it is either 14.3 MHz for NTSC or 17.7 MHz for PAL. 2. Often used incorrectly to indicate both resampling of digital rates and encoding/decoding.

RBOC

Regional Bell operating company.

read before write

A feature of some videotape recorders that plays back the video or audio signal off of tape before it reaches the record heads, sends the signal to an external device for modification, and then applies the modified signal to the record heads so that it can be re-recorded onto the tape in its original position.

real time

Computation or processing done in the present to control physical events occurring in the present. For example, when a digital effects system operator moves a joystick and the video images on the monitor appear to move simultaneously, the computations required to make the images move are said to have occurred in real time.

real-time multilayering

The ability to assemble several layers of video in real time. Some video switchers, such as the Kadenza system, allow several video layers to be viewed simultaneously in real time before a recording is made.

rear connector channel

See *backplane*.

reboot (reset)

To restart a computer. See *boot up*.

reclocking

The process of clocking digital data with a regenerated clock.

recursion, recursive effects

Means to write again. A digital picture manipulation in which images are repeated on screen to create such effects as image trails, mosaics, and montages.

recursive loop

In digital picture manipulators, the part of the digital effects processor used to build recursive effects such as star trails, mosaics, montage effects, strobes, etc.

red field

A test signal in which the picture is filled with 75% or 100% red.

redundant power supply

Backup power supply which takes over immediately if the primary power supply fails.

re-entry (reentry)

In video switchers, the ability to select the output of a mix/effects level as the input to another mix/effects level or to the program/preset mixer.

reference

See *reference video signal*.

reference synchronizing generator

A sync pulse generator used as the main source of synchronizing signals. Other sync generators may be slaved (derive their signals) from the reference generator.

reference video signal

A composite video signal to which other signals are compared or locked for timing purposes.

refractive index

Relating to fiber optics, the ratio of the velocity of light in a vacuum to its velocity in a material, such as an optical fiber.

regen

regenerator.

regenerate

In video, to restore a pulse to its correct shape and level.

register

A memory storage location in an effects memory system.

relative humidity

Ratio of the quantity of water vapor in the atmosphere to the quantity which would cause saturation at the existing temperature.

relay

An electromechanical device having electrical contacts that open or close when current is applied to the activating mechanism of the device.

relay bypass

A video device that, in the event of a power failure, routes the video signal around the equipment that has lost power. GVG's 3240-206 Relay Bypass Module is an example.

relegendable buttons

Control buttons that are designed to allow the user to change their designations (the name on the button).

remote feeds

Electronic signal transmitted from a distant location.

remote truck, remote van

A mobile truck or van that houses a broadcast switching and control center for broadcasting news or sports.

repeater

1. A receiver/transmitter that receives a signal from another transmitter and relays (retransmits) it to another receiver or a receiver/transmitter. 2. In fiber optics, a device that converts a received optical signal to its electrical equivalent, reconstructs the source signal format, amplifies and reconverts it to an optical output signal. The purpose is to restore the light amplitude, compensating for normal loss in fiber.

reset

To restore a device to its default or original state. To restore a counter or logic device to a known state, often a zero output.

resistive load

A load in which the voltage is in phase with the current.

resistor

A component made of a material (such as carbon) that has a specified resistance or opposition to the flow of electrical current.

resolution

Detail. In digital video and audio, the number of bits (four, eight, ten, etc.) determines the resolution of the digital signal. Four bits yields a resolution of 1 in 16. Eight bits yields a

response

resolution of 1 in 256. Ten bits yields a resolution of 1 in 1024. Eight bits is the minimum acceptable for broadcast television.

response

See *frequency response*.

responsivity

A measure of the sensitivity of a photosensor. The ratio of the output current or voltage to the input flux in watts or lumens. When responsivity is indicated at a particular wavelength (in amperes/watt), it denotes the spectral response of the device.

restorer

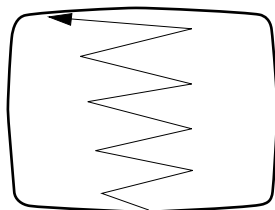
See *DC restoration*.

retiming

Adjustment of a local synchronizing generator that has been locked to a distant source. This permits the local facility to use the distant source in real-time production through a video switcher.

retrace

The return of the electron beam in a CRT to the starting point after scanning. During retrace, the beam is typically turned off. All of the sync information is placed in this "invisible" portion of the video signal. May refer to retrace after each horizontal line or after each vertical scan (field).



Retrace

return loss

A measure of the accuracy of the impedance match between a signal source (such as a cable) and its terminating load. An unequal impedance match causes some of the power from the source to be reflected back to the source, resulting in signal distortion. The ratio of the signal voltage at the load to that voltage reflected back to the source is defined as the return loss. This ratio is generally expressed in decibels (dB).

RF

Radio frequency.

RFI

Radio frequency interference. Spurious electromagnetic energy that interferes with electronic equipment or broadcast signals.

RG-59

A coaxial cable type often used in television.

RGB (red, green, & blue; GBR)

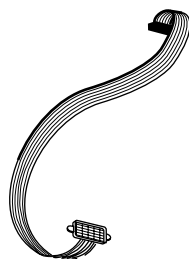
The three primary colors used in video processing, often referring to the three unencoded outputs of a color camera or VTR.

RHC

Regional holding company.

ribbon cable

Flat cable with individually-insulated multiple parallel conductors.



Ribbon Cable

ringing

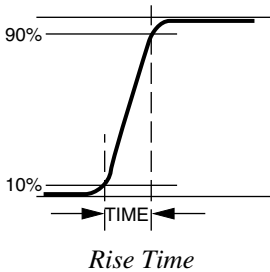
An oscillatory transient on a signal occurring as a result of band-width restrictions and/or phase distortions. A type of ringing causes ghosting in the video picture.

ripple

A feature of video editing systems that automatically adjusts the in and out edit points of all affected events in a show when an event is deleted, added or changed in length.

rise time

Time required for a pulse edge to rise from 10% to 90% of the final value.

**r-mark**

Record mark. This is a mark in the edit decision list indicating that the edit has already been recorded.

RMS

Root mean square. A measure of effective (as opposed to peak) voltage of an AC waveform. For a sine wave it is .707 times the peak voltage. For any periodic waveform, it is the square root of the average of the squares of the values through one cycle.

roll

1. To start playing a videotape. 2. To scroll credits or graphics vertically up or down the screen. Also called credit roll.

rolloff (slope)

A gradual decrease in signal voltage, usually associated with an increase in frequency.

ROM

Read only memory. A memory device that is programmed only once with a permanent program or data that cannot be erased.

rotation

In digital picture manipulators, to turn an image on one of its axes. In video switchers, to turn a wipe pattern around a point on the picture surface.

rough cut

In editing, a preliminary version of the edit decision list.

router, routing switcher

An electronic device that routes a user-supplied signal (audio, video, etc.) from any input to any user-selected output. Inputs are called sources. Outputs are called destinations.

RSA

Rural service area.

RP-125

A SMPTE parallel component digital video standard. See *SMPTE 125M*

RS-170A

A document prepared by the Electronics Industries Association describing recommended practices for NTSC color television signals in the United States.

RS-232

A standard, single-ended (unbalanced) interconnection scheme for serial data communications.

RS-250B

In telecommunications, a transmission specification for NTSC video and audio.

RS-422

A standard, balanced interconnection scheme for serial data communications.

RU

Rack unit.

ruler

A graphic element of a video editing application that shows time or time-code along a horizontal axis. Similar to the ruler in word processing applications except the units are times.

ruler-flat frequency response

The response of a system to a constant-amplitude function that varies in frequency is flat if the response remains within specified limits of amplitude, usually specified in decibels from a reference quantity.

run mode

In GVG video equipment, this mode permits an effect to be recalled and replayed, but not created or modified.

R-Y

A designator used to name one of the color signals (red minus luminance) of a color difference video signal. The formula for deriving R-Y from the red, green, and blue component video signals is $.70R - .59G - .11B$.

RZ

Return to zero. A data stream in which the logic level for a data 1 is a 1 during the time the data clock is high but returns to 0 during the time the data clock is low. For a data 0 the logic level is 0 for both high and low states of the data clock.

S

s

Second.

Sabre

A full-featured GVG video tape editing system that runs on the Silicon Graphics Indy™ workstation.

Safe title area (safe action area)

An area in the center of the television screen where it is considered safe to place a title key or other graphic so that none of it will get cut off at the outer edges by a TV receiver. The safe action area is slightly larger than the safe title area and is the area within which action should be confined so as to ensure that it will be visible on most television sets.

salvo

The sending of a group of commands at the same time.

sample and hold

A circuit that takes a sample of an input voltage and holds or maintains that voltage at its output for a period of time.

sampling

Process by which an analog signal is measured, often millions of times per second for video, in order to convert the analog signal to digital.

sampling frequency

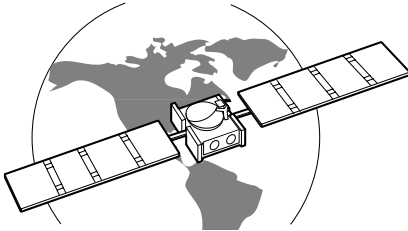
The number of discrete sample measurements made in a given period of time. Often expressed in megahertz for video.

SAT

saturation.

satellite

1. An orbiting space vehicle containing a set of transponders that retransmit television broadcast signals back to earth receivers. 2. A TV station licensed to rebroadcast the programming of a parent station.

*Satellite***satellite auxiliary bus control panel**

Relating to video switchers, a standalone auxiliary bus control panel.

satellite downlink

The communications path from a satellite to its ground station.

satellite uplink

The communications path from a ground station to its satellite.

saturation (chroma, chroma gain)

1. The intensity of the colors in the active picture. The voltage levels of the colors. The degree by which the eye perceives a color as departing from a gray or white scale of the same brightness. A 100% saturated color does not contain any white; adding white reduces saturation. In NTSC and PAL video signals, the color saturation at any particular instant in the picture is conveyed by the corresponding instantaneous amplitude of the active video subcarrier. 2. The point on the operational curve of an amplifier at which

an increase in input amplitude will no longer result in an increase in amplitude at the output.

SAV

Start of active video. A synchronizing signal used in component digital video.

SC

Subcarrier.

SC/H phase (subcarrier to horizontal phase)

In NTSC video, the phase relationship of the subcarrier to the leading edge of horizontal sync. SC/H phase is correct when the zero crossing of subcarrier is aligned with the 50% point of the leading edge of sync. In PAL video, the SC/H phase is defined as the phase of the EU component of the color burst extrapolated to the half amplitude point of the leading edge of synchronizing pulse of line 1 of field 1.

SC/H phase error

An incorrect phase relationship of the subcarrier to the leading edge of horizontal sync.

SC/H phased (timed)

The time relationship of the subcarrier to (the leading edge of) horizontal sync is correct. See *SC/H phase*.

scan

One sweep of the target area in a camera tube or of the screen in a picture tube.

scatter

See *timing scatter*.

schematic

A diagram of the electrical scheme of a circuit with components represented by graphic symbols.

scope

Slang, short for oscilloscope (waveform monitor) or vectorscope, which are electronic devices used to display and measure the television signal.

SC phase stability

The equipment in question is able to maintain subcarrier phase within specifications.

scrambling

1. To transpose or invert digital data according to a prearranged scheme in order to break up the low-frequency patterns associated with serial digital signals. 2. The digital signal is shuffled to produce a better spectral distribution.

s-curve

(1) An S-shaped frequency-response curve showing how the output of a frequency-modulation detector or circuit varies with frequency. (2) In GVG switchers and digital picture manipulators, a type of motion path between key frames where the graph of displacement versus time is shaped like an S; in other words, movement between key frames takes place at a variable speed.

SECAM

Sequential couleur avec memoire (sequential color with memory). A color television system with 625 lines per frame and 50 fields per second developed by France and the U.S.S.R. Color difference information is transmitted sequentially on alternate lines as an FM signal.

seek event

An editor command that enables the user to search for and find a particular event in the edit decision list.

self key

An insert key effect in which the key video signal serves as both the key source and fill.

sequence

The ability of a memory system to link several learned effects together and replay them based on timing information provided by the operator.

sE-QUENCER™

A GVG trademarked E-MEM® function that enables E-MEM® registers to be recalled automatically in a pre-programmed sequence.

sequential assembly

In video editing, a sequential method of auto assembly. The computerized editing system records all edits listed in the edit decision list in order from first to last, requesting source tapes as they are needed. Also called A-mode assembly. See also *auto assembly*.

serial

Time-sequential transmission of data along a single wire. Analogous to a railroad train, where each car (data bit) follows the other in single file.

serial control panel

A control panel separate from the switcher (for example, a routing switcher) that communicates with the switcher via a serial connection.

serial digital

1. Digital information that is transmitted in serial form. Often used informally to refer to serial digital television signals.

serial interface

A digital communications interface in which data is transmitted and received sequentially along a single

wire or pair of wires. Common serial interface standards are RS232 and RS422.

serializer

A device that converts parallel digital information to serial.

serial video processing

A video mixing architecture where a series of video multipliers, each combining two video signals, is cascaded or arranged in a serial fashion. The output of one multiplier feeds the input of the next, and so on, permitting effects to be built up, one on top of the other.

serrations (vertical serrations)

A series of equally-spaced pulses within a pulse signal. For example, the vertical sync pulse is serrated in order to keep the horizontal sweep circuits locked during the vertical-sync-pulse interval.

set-in

An editor command meaning to enter an in-edit point.

set-in/set-out

A method of video editing using precise in and out point selection as opposed to on-the-fly editing.

set-out

An editor command meaning to enter an out-edit point.

setup (black reference, black level)

1. The specified base of the active picture signal which is at reference black level. Called setup because it is placed 7.5 IRE units above blanking (zero IRE) in NTSC video. 2. The basic operating configuration of a system.

shading

To adjust the contrast and color levels of a camera.

shadow key

A chroma key that retains the shadows cast by the foreground object.

shaft encoder

An digital electrical device similar to a potentiometer in function. The turns of a shaft, typically connected to a knob, are read and encoded into digital data.

shaping, shaped video

Shaped video is video that has already been multiplied by a key signal, usually resulting in a video shape that appears over a black matte. Typically, shaped video is the output of a character or graphics generator, together with a matching key signal. Both signals have "soft" anti-aliased edges. The two signals may be used in the keyer of a production switcher, where the key signal cuts a hole in the background and the shaped video fills the hole to create an anti-aliased key.

short time linear distortion

In video, an unwarranted change in amplitude or phase that occurs in a short time frame (0.1 to 1 μ s). The resulting TV picture will have dulled luminance transitions (fuzzy vertical lines) and color bleeding of areas adjacent to the vertical lines.

shot box

A box that mounts on a video camera and includes several buttons that activate various preset automatic zoom speeds and zoom positions.

shutter mask

See *box mask*.

shuttle

In videotape machines, a high-speed tape-running mode that permits fast cuing or rewinding of the tape.

signal

A waveform used to convey information from one point to another.

signal conditioning

The processing of a signal so as to make it compatible with a given device, including pulse shaping, pulse clipping, etc.

signal generator

A test oscillator that can be adjusted to provide a test signal at some desired frequency, voltage, modulation, and waveform.

signal processing

See *signal conditioning*.

signal to noise ratio (SNR, S/N)

Expressed in decibels, the signal to noise ratio relates how much stronger a signal is than the background noise.

Silhouette™

A GVG trademarked Borderline® generator for the Model 200 switcher that can create borders and shadows that are up to 8 lines wide and that can be moved using the joystick positioner.

sine wave

A periodic wave in which the wave-shape is proportional to the sine of the time variable.



Sine Wave

single channel mode

In GVG digital picture manipulators, a mode in which the panel is delegated to only one channel.

single ended

An unbalanced circuit where one side of the circuit or transmission line is grounded. See also *balanced* and *unbalanced*.

single-mode fiber

An optical glass fiber that consists of a core of very small diameter (usually 2–10 microns) and a cladding approximately 20 times the thickness of the core. Such fibers are normally used only with laser sources because of their very small acceptance cone. Since the cone diameter approaches the wavelength of the source, only a single mode is propagated.

skew

1. A digital picture manipulator effect in which the picture is slanted along its horizontal or vertical axis.
2. Curve at the top of the picture resulting from improper VTR tape tension.

skewed key frame

In digital picture manipulators, the condition when a key frame in one channel does not line up with a key frame in another channel with respect to time.

skew ray

In fiber optics, a transmitted ray that never intersects the longitudinal axis of the fiber while being transmitted.

slave

Component in a system that does not act independently, but only under the control of another component.

slave port

Controlling port for subordinate equipment.

slave sync generator

A sync generator that receives a reference signal—typically color black or GVG's encoded subcarrier—from the master sync generator and produces all appropriate sync pulses. Slave generators normally feed each major area of the plant, such as videotape machines, cameras, switchers, etc.

slew rate

The maximum rate of change of the output voltage of an amplifier operated within its linear region.

slide effect

A video effect in which a picture slides across the monitor from one screen position to another.

slope

See *rolloff*.

S-MAC

A multiplexed analog component video standard proposed for studio intra-connection by the SMPTE working group on Component Analog Video Standards. The S-MAC system uses time compression and time domain multiplexing techniques to convey Y, Cr, Cb video signals.

SMDS

Switched multimegabit data service.

smear

A picture condition in which objects appear to be extended horizontally beyond their normal boundaries in a blurred or "smeared" manner.

smooth rolloff

See *rolloff*.

SMPTE

Society of Motion Picture and Television Engineers. A professional organization that sets standards for American television. An informal name for a color difference video format that uses a variation of the Y, R-Y, & B-Y signal set.

SMPTE 125M (was RP-125)

The SMPTE recommended practice for a bit parallel digital interface for component video signals. SMPTE 125M defines the parameters required to generate and distribute component video signals on a parallel interface.

SMPTE 244M

The SMPTE recommended practice for a bit parallel digital interface for composite video signals. SMPTE 244M defines the parameters required to generate and distribute composite video signals on a parallel interface.

SMPTE 259M

The SMPTE recommended practice for 525 line serial digital component and composite interfaces.

SMPTE time code

Time code that conforms to SMPTE standards. It consists of an eight-digit number specifying hours: minutes: seconds: frames. Each number identifies one frame on a videotape. SMPTE time code may be of either the drop-frame or non-drop frame type. In GVG editors, the SMPTE time code mode enables the editor to read either drop-frame or non-drop frame code from tape and perform calculations for either type (also called mixed time code).

SMT

Surface mount technology.

S/N

S/N

See *SNR*.

SNA

Systems network architecture.

snapshot

A frozen picture of the control settings of a production switcher or digital picture manipulator at a given point in time.

snow

Video noise.

SNR

Signal-to-noise ratio. The SNR relates how much stronger a signal is than the background noise. Usually expressed in decibels (dB).

snubber

Electronic circuit that suppresses high frequencies.

soft black clip

Stops the luminance video going below a predetermined level.

soft border

A wipe pattern border that is mixed on the edges to give a graduated effect.

soft edge

A pattern edge between two video signals in which the signals are mixed together for a graduated transition effect.

soft panel, soft knobs, soft controls

A hardware control panel whose functions are defined by software and subject to change depending upon which menu selections the operator has made.

SOFTSET™

A Grass Valley Group software-controlled feature set that may include E-MEM registers, standard programming, general purpose interface programming, and service diagnostics.

soft white clip

Stops the luminance video from going above a predetermined level.

solarization

A digital picture manipulator effect in which the luminance levels are reversed, resulting in a picture that looks like a photographic negative.

SONET

Synchronous optical network standard. A telecommunications standard.

source

1. Equipment that produces video, such as cameras, tape recorders, graphics and character generators.
2. In digital picture manipulators, the origin of picture information applied to the input of a digital effects processor. May be consist of a video component and sometimes a key component.

source identification

A brief message, keyed into video, that defines the originator or point of origin of the signal. Often consists of call letters and city of origin.

source space

In digital picture manipulators, the axes of the video image on the monitor screen.

source synchronizing generator

A synchronizing pulse generator used to drive a specific piece of source equipment. It is referenced to a master reference synchronizing generator.

source terminated

A circuit whose output is already terminated for correct impedance matching with standard cable.

source timing module (STM)

Similar to a slave sync generator but occupies only a single module, typically for use in a distribution amplifier tray. Outputs a limited set of synchronization pulses that may be retimed relative to the locking master sync generator.

spectral bandwidth

In telecommunications, the spectral bandwidth for single peak devices is the difference between the wavelengths at which the radiant intensity is 50% (or 3dB) down from the maximum value.

SPG

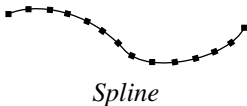
See *sync pulse generator*.

spin

To rotate a video image.

spline

A curve shape produced on a computer or video device by connecting dots or points at various intervals along the curve. In digital picture manipulators, each key frame becomes a point on a curve and the user can control how straight or curved the path of the transformed image is as it travels through the key frame points.



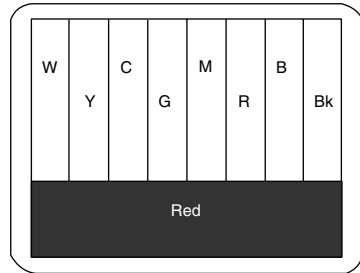
Spline

split edit

An edit in which the audio in-edit point is different from the corresponding in-edit point of video or another audio channel.

split field

Horizontal, vertical, or diagonal images. Split field EBU bars are an example.



Split Field

split key

A video switcher key mode in which one key bus button selects the hole cutter and a different key bus button selects the fill video. Also called key split or key breakaway.

split screen

A video effect in which two scenes are on screen at the same time, separated by a wipe pattern.

spotlight

A highlight effect produced by superimposing a full-strength video signal shaped by a wipe pattern over an attenuated (darkened) signal from the same video source.

spurious signal

Any portion of the signal that is not part of the fundamental video signal. Spurious signals include transients, noise, and hum.

square-wave

A square or rectangular-shaped periodic wave that alternately assumes two fixed values for equal lengths of time, the transition being negligible in comparison with the duration of each fixed value.

squeeze

A digital picture manipulator effect where the picture is compressed (made smaller).

squeeze an EDL

Compress an edit decision list.

s-shaping

Applying an s-shaped transfer function to a keyer to avoid high frequency keying artifacts.

SSP

Service switching point.

star trail

A trail effect in which random pixels turn off, creating a blinking or starry appearance.

station ID

The identification letters of a broadcast station.

status

The present condition of a device.

steady-state

A condition in which circuit values remain essentially constant, occurring after all initial transients or fluctuating conditions have settled down.

step

A digital picture manipulator term meaning to advance a key frame effect one video frame or field at a time.

step index fiber

An optical fiber that has a core and a cladding with an abrupt change in the refraction index at the core-cladding interface. The index of the cladding is usually less than that of the core to permit total internal reflection.

still store

Device for storage of specific frames of video.

STM

Source timing module.

stripe

To record SMPTE time code onto a tape.

Streamline™

A GVG trademarked name for a soft panel and display.

STS

Shared tenant services.

studio

A room designed for recording or broadcasting.

stylus

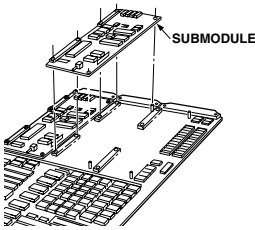
A small pointer used like a pencil for drawing on a video/ computer graphics system.

subcarrier (SC)

In NTSC or PAL video, a continuous sine wave of extremely accurate frequency which constitutes a portion of the video signal. The subcarrier is phase modulated to carry picture hue information and amplitude modulated to carry color saturation information. The NTSC subcarrier frequency is 3.579545 MHz, and the PAL-I frequency is 4.43361875 MHz. A sample of the subcarrier, called color burst, is included in the video signal during horizontal blanking. Color burst serves as a phase reference against which the modulated subcarrier is compared in order to decode the color information.

submodule

A small circuit board that mounts on a larger module. Also called a mezzanine.



Submodule

substrate

The physical material upon which an electronic circuit is fabricated.

subsystem

A functional portion of a larger system.

super black

A luminance level between standard black and sync level. Super black is inserted into the background of a video signal to improve its utility as a source for luminance self keying. It is useful when the foreground of the signal contains some black, which would make a good-quality luminance key difficult to obtain.

Super Edit™

A trademarked name for the GVG editor software.

surface mount

A method of mounting subminiature integrated circuits and other components directly on the surface of a printed circuit board. Permits greater component density on boards, making the electronic equipment smaller.

swap

1. A feature of some GVG switchers which enables the selections made on two mix/effects to be exchanged (selections on M/E 1 transfer to M/E 2 and vice versa). 2. An editor operation that exchanges functions (including machine assignments) of the record device and a source device. Useful in compositing.

SWC

Serving wire center.

sweep circuit

A generator that produces a periodic deflection of an electron beam on a CRT.

sweetening

Electronically improving the quality of an audio or video signal, such as by adding sound effects, laugh tracks, and captions.

switcher (production switcher)

Device that allows selection of video sources. Also does transitions between sources and special effects.

switcher channel

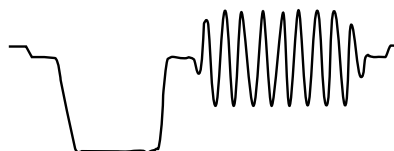
Hardware capable of processing one layer of video with all of the switcher channel features (wipes, keys, borderlines, and chroma keys, etc.).

sync

The portion of an encoded video signal that occurs during blanking and is used to synchronize the operation of cameras, monitors, and other equipment. Horizontal sync occurs within the blanking period in each

sync add

horizontal scanning line, and vertical sync occurs within the vertical blanking period.



Sync Pulse

sync add

A function of a video device that adds sync to the video signal. In component video, sync add is typically used when there is no sync on the green channel of an RGB signal.

sync generator

Device that generates synchronizing pulses needed by video source equipment to provide proper equipment or studio timing. Pulses typically produced by a sync generator include subcarrier, burst flag, sync, blanking, H & V drives, color frame identification, and color black.

sync processing

See *blanking processor*.

synchronizing pulse generator (SPG)

See *sync generator*.

synchronous

A transmission procedure by which the bit and character stream are slaved to accurately synchronized clocks, both at the receiving and sending end.

sync pulse

Timing pulses added to a video signal to keep the entire video process synchronized in time.

sync timebase error

See *timebase error*.

sync tip

The furthest negative excursion level of the sync pulses.

sync word

A synchronizing bit pattern, differentiated from the normal data bit patterns, used to identify reference points in the digital television signal; also to facilitate word framing in a serial receiver.

T

T1

In telecommunications, the paired cable used to transport DS1 service.

TAP

Test access port. In telecommunications, an MML command that allows any port on a digital switch to be used as a test port.

take

1. Direct, immediate switching from one source to another, occurring during the vertical interval for clean transitions. 2. The control panel operation which brings a preset source or sources to air.

tally

1. A lamp which lights to indicate that the associated video source is in use. Typical locations of tally lamps are on the front of video cameras and in the crosspoint pushbuttons of video switchers. 2. The acknowledgment returned to the control panel or terminal that an operation has been executed.

tally relay

A relay whose contacts close when an associated function is placed on-air. Tally relays are used in video switchers to provide the customer a way to light a camera tally lamp when the camera is placed on air at the switcher panel.

target space

In digital picture manipulators, the axes of the monitor screen.

TBC

Time base corrector.

TCB

Tension, continuity & bias.

TCXO

Temperature compensated crystal oscillator.

TD

Technical director. Switcher operator.

TDM

Time division multiplex. The management of multiple signals on one channel by alternately sending portions of each signal and assigning each portion to particular blocks of time.

tearing

A lateral displacement of the video lines due to sync instability. Visually it appears as though parts of the images have been torn away.

technical director

The operator of the video production switcher in a live broadcast.

telecine

A device for capturing movie film as a video signal.

teleconferencing

Electronically-linked meeting conducted among groups in separate geographic locations.

teleprompting

Text shown on a television monitor to assist a performer or speaker.

temporal aliasing

A defect in a video picture that occurs when the image being sampled moves too fast for the sampling rate. A common example occurs when the rapidly rotating spokes of a wagon's wheels appear to rotate backwards because of video scanning that moves more slowly than the spokes.

TEN-XL/TEN-XLCV

A Grass Valley 10 x 1 compact video/audio routing switcher.

TEN-20™

A Grass Valley Group one rack unit router with 10 inputs and 20 outputs.

tension, continuity & bias

In key frame effects, the controls for moving an object along a path. Tension controls the length of the tension vector, continuity controls the angle of the path, and bias controls whether the path will be "pulled" towards the previous or the following key frame.

terminal block

An insulating base equipped with one or more terminal connectors.

terminal equipment

Equipment at an end of communication lines that send and/or receive certain signals for specific services. Some examples in television include sync pulse generators, processing amplifiers, and distribution amplifiers.

terminate, termination

To complete a circuit by connecting a resistive load to it. A video termination is typically a male BNC connector which contains a 75 ohm resistive load. When there are looping inputs, any unused looping input must be terminated in 75 ohms to ensure proper signal levels and to minimize reflections.

terminated

A transmission line ending in a resistance equal to the characteristic impedance of the line so that there are no reflections or standing waves.

test point

Typically a post in a circuit that can be monitored to test a parameter of the circuit.

test signal

An electronic signal with standard characteristics used to test the capability of circuits.

test signal generator

Device that generates special television signals used for aligning television equipment.

texture mapping

The ability of a digital picture manipulator to create textured surfaces that can be applied to shapes.

THD

See *total harmonic distortion*.

thick-film

A film pattern made by applying conductive and insulating materials to a ceramic substrate by a silk-screen process. Thick films can be used to form conductors, resistors, and capacitors.

threshold current

In telecommunications, the minimum forward current for which the laser is in a lasing state at a specified temperature.

throughput

A measure of efficiency of a system; the rate at which the system can handle work.

tie line

A link from the output of one routing matrix to the input of another matrix.

time base corrector

Device used to correct for time base errors and stabilize the timing of the video output from a tape machine.

time base error

Horizontal rate flutter of a video signal caused by tape stretch and inherent imperfections in the tape transport mechanism of a videotape recorder.

time code

Timing code laid down on videotape to give each frame a unique number so as to ensure exact transitions during editing.

time delay

The time required for a signal to travel through a circuit.

timed

The devices or signals in question are synchronized with one another.

timeline

1. An effects control feature that enables the operator of a switcher or digital picture manipulator to pre-program a series of timed events, such as auto transitions, E-MEM recalls, and GPI triggers, and then replay them. 2. A window within a video editing application where

clips and other production elements can be graphically arranged to create a fully edited production. The horizontal axis of the timeline window represents a timeline of the show.

time-multiplex

In the case of ITU-R BT.601-2 (CCIR-601), a technique for transmitting three signals at the same time on a group of parallel wires (parallel cable).

timing pulse

See *sync pulse*.

timing scatter

Routing switcher term describing varying electrical lengths.

title

A caption.

title inserter

See *title key*.

title key

A key effect which imposes a caption over a background scene. The source of the title key signal may be a character generator or a graphics camera.

toggle

To change back and forth between two states (for instance: on, off, on, off, etc.) by alternately opening and closing an electric circuit.

tone

Typically refers to a single-frequency audio signal used as a level setting reference.

total harmonic distortion (THD)

The ratio of the sum of the amplitudes of all signals harmonically related to the fundamental and the amplitude of the fundamental signal.

T-pulse

A sine-squared pulse used as an indication of frequency and phase response.

T-pulse to bar

A specification term relating to frequency response of video equipment. A video signal containing equal amplitude T-pulse and bar portions is passed through the equipment and the relative amplitudes of the T-pulse and bar are measured at the output. A loss of response is indicated when one portion of the signal is lower in amplitude than the other.

trace

In telecommunications, an MML command to trace designated ports.

TRACE™

A GVG trademarked editor program that reads the EDLs from several generations of edits to a show and constructs a final EDL with references back to the original source material. This ensures that the final show will be recorded from the original source material, ensuring against multigenerational degradation.

track

1. The section of a videotape where a particular signal is recorded. There are separate tracks for video, audio, time code, etc. 2. Levels in the timeline window of an editing application where video and audio elements can be placed to insert them into the production.

trail

A digital picture manipulator effect in which an image repeats on screen as it moves so that it appears to leave a trail of duplicate images behind.

trailing edge

hind it. If the trail is set to decay mode, the trailing images gradually fade away.

trailing edge

The transition of a pulse that occurs last, such as the high-to-low transition of a high clock pulse.

transcoder

A device that converts one form of encoded video to another, e.g., to convert NTSC video to PAL. Sometimes mistakenly used to mean translator.

transducer

A device that converts one form of energy into another. For example, in fiber optics, a device that converts light signals into electrical signals.

transform, transformation

In digital picture manipulators, to digitally change a picture in some way that alters the appearance or location of the picture, such as applying translation, rotation, perspective changes, size changes, aspect and skew manipulations, etc.

transformation path

In digital picture manipulators, the path or direction and speed that a transformed image follows as it moves from one key frame to the next.

transformer

An electrical device that inductively transfers electrical energy from one circuit to another circuit at the same frequency but usually at a different impedance, voltage, and current.

transient

A momentary surge on a signal or power line.

transistor

A semiconductor electronic device having three electrodes and used for signal buffering, amplification, etc.

transition

A change from one picture to another. A transition can be a wipe, mix, or cut.

transition interrupt

Selection of a new preset source with a transition in progress. The switcher removes the old program video in time and remains (if necessary) in black/silent until a newly selected source is ready and placed on-air.

transition status display

A patented GVG device that keys MASTER-21™ status into an external television monitor.

translate

1. In digital picture manipulators, movement of the image or screen along its X,Y, or Z axis. 2. Changing a video signal from one format to another.

translator

A device used to convert from one component set to another, e.g., to convert Y, R-Y, B-Y signals to RGB signals.

transmitter

Equipment used to generate and amplify an RF carrier signal, modulate this carrier with information, and radiate the modulated RF carrier into space.

tray (frame)

The metal cabinet that holds circuit boards.

triaxial

A special form of coaxial cable containing three conductors.

trigger

A pulse that starts an action or function.

trim

1. To make a fine adjustment in a circuit or a circuit element. 2. In video editing systems, to add or subtract time code to adjust edit points.

Trompeter

Brand of connector. Also a brand of tool for plugging and unplugging BNC connectors.

trough

Also called cable trough. A slot underneath the flooring of a television facility where cables are laid for running from room to room.

TRS

Timing reference signals in composite digital systems (four words long).

TRS-ID

Timing reference signal identification. A four-word reference signal used to maintain timing in composite digital systems.

truncation

Deletion of lower significant bits on a digital system. Usually results in digital noise.

T-Span

A telephone circuit.

tumble

A transformation in which the picture appears to turn around its X (horizontal) axis. See also *flip*.

tuned-circuit equalizer

A circuit that is adjusted to be resonant at a particular frequency. Equalizer that employs circuits con-

sisting of inductance and capacitance that can be adjusted for resonance at the desired frequency.

twisted pair

A cable composed of two small insulated conductors twisted together. Since both wires have nearly equal exposure to any interference, the differential noise is slight.

TWX

Teletypewriter exchange service.

TypeDeko™

A GVG broadcast quality character generator running under Windows NT on the DEC Alpha workstation.

U

U

One of the two color difference signals that modulate subcarrier in the PAL system. U corresponds to weighted B-Y, and V corresponds to weighted R-Y. The formula for deriving the U signal is $.493(B-Y)$.

UART

Universal asynchronous receiver/transmitter. An integrated circuit that interfaces a microprocessor to a serial I/O port.

unbalanced

Frequently, a circuit having one side grounded. A circuit, the two sides of which are electrically different. See also *single-ended* and *balanced*.

unconditional

In telecommunications, used with the MML switch commands. An unconditional command is implemented irrespective of previous connections made.

underscan

underscan

A video monitor condition in which the raster does not expand completely to the physical edges of the CRT screen, resulting in a black border around the edges of the screen. Some monitors can be set to underscan mode.

unit interval

In telecommunications, the time duration for one bit period at a specified data transmission rate. The basic unit for measuring jitter.

unity gain

An amplifier or active circuit in which the output amplitude is the same as the input amplitude.

unity key frame

In digital picture manipulators, a part of memory used to retain user-defined values for parameters such as background color, border ON/OFF, key frame duration, etc.

unity picture

In digital picture manipulators, a picture in which all of the key frame parameters that define the picture are at their default values.

unity source memory

In digital picture manipulators, memory used to retain user-defined settings of source-related parameters for each source, similar to unity key frame.

unterminated

Not terminated.

uplink

The earth station that transmits signals to a satellite for relay to another location on the ground.



Uplink

upstream

1. Placed ahead of other devices in a video signal path. 2. Describes the location of keyers in a mix/effects level or in the overall switcher architecture. 3. Relates to the priority of the video signals as they are combined through the video production switcher.

V

V

Vertical. See *vertical interval*.

V

One of the two color difference signals that modulate subcarrier in the PAL system. V corresponds to weighted R-Y, and U corresponds to weighted B-Y. The V component of subcarrier is reversed in phase on alternate lines. The formula for the V signal is $.877 (R-Y)$.

V1

A signal that identifies the first field of the four field color sequence for NTSC or the eight field color sequence for PAL (see *color field*). Also called CFID (color field ID).

V A

Volt-ampere. Volts times amperes.

VAN

Value-added network.

V and U

PAL color difference signals.

V axis switch

In PAL television, a 180° phase shift at line rate of the V color component relative to subcarrier. See also *PAL ID*.

V blanking width

Refers to the width in terms of time or horizontal lines of the television blanking signals that occur during the vertical retrace interval.

VCR

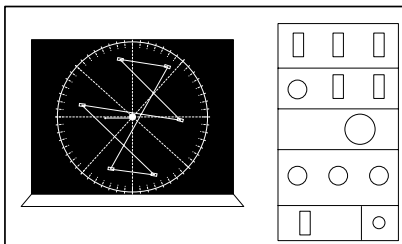
Video cassette recorder.

VCXO

Voltage controlled crystal oscillator.

vectorscope

A trademarked name that has become the generic description for a vector display unit which allows visual checking of the phase and amplitude of the color components of a video signal.

**vernier control**

Fine adjustment control.

vernier trim

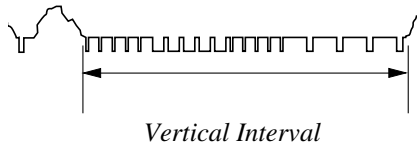
See *vernier control*.

vertical drive

Synchronizing pulse that occurs at the leading edge of vertical blanking. Used in older systems to indicate the start of vertical retrace.

vertical interval

The portion of the video signal that occurs between the end of one field and the beginning of the next. During this time, the electron beams in the cameras and monitors are turned off (invisible) so that they can return from the bottom of the screen to the top to begin another scan.

**vertical interval data**

Relating to video switchers and other similar devices, vertical interval data is internal system control data that is updated and distributed during each vertical interval.

vertical period

In video, the time required for one vertical scan cycle. In NTSC, this is 1/59.94 second, in PAL, 1/50 second.

vertical resolution

Chrominance and luminance detail expressed vertically in the picture tube. Limited by the number of scan lines.

vertical retrace

The return of the electron beam from the bottom to the top of the raster after completion of each field.

vertical serrations

A vertical synchronizing pulse contains a number of small notches called vertical serrations. These serrations provide horizontal synchronization during the vertical interval.

vertical sync pulse

The synchronizing pulse at the end of each field which signals the start of vertical retrace.

video

An electrical signal that carries television picture information.

video crosspoint module

In video switchers, a circuit board containing video switching crosspoints.

videoDesigner Desktop Graphics

A Grass Valley graphics system designed for the MS-DOS PC.

video distribution amplifier (DA)

See *distribution amplifier*.

video fill

A video signal from a primary input or external input used to fill the hole made by a key signal.

video gain (white level, white bar, reference white)

The range of light-to-dark values of the image which are proportional to the voltage difference between the black and white voltage levels of the video signal. Expressed on the waveform monitor by the voltage level of the whitest whites in the active picture signal. Video gain is related to the contrast of the video image.

video mixer

European term for video production switcher.

video monitor

A high-quality television set (without RF circuits) that accepts video baseband inputs directly from a TV camera, videotape recorder, etc.

video path

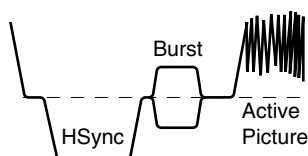
The electronic path within the device that routes and processes the video signals. Video path length refers to the amount of time required for a signal to travel from input to output.

video processing amplifier

A device that stabilizes the composite video signal, regenerates the synchronizing signals, and allows other adjustments to the video signal parameters.

video signal

An electrical signal that includes all of the information present in the television picture together with the necessary synchronizing signals.



Video Signal

video switcher (production switcher, video mixer)

Device that accepts inputs from a variety of video sources and allows the operator to select a particular source to be sent to the switcher's output(s). May also include circuits for video mixing, wiping, keying, and other special effects.

videotape recorder (video tape recorder, VTR)

A device which permits audio and video signals to be recorded on magnetic tape.

video to audio crosstalk

A measurement, typically in dB, of the amount of unwanted video signal energy present in an audio signal.

video track

The track or area on a videotape where video information is recorded.

viewer

In desktop video editing, a window that allows playing of video clips, albums, and timelines.

VIR

Vertical interval reference. Reference signal inserted into the vertical interval of source video. This signal is used further down the video chain to verify parameters and to automatically adjust gains and phase.

virtual matrix

Division of a single physical routing matrix into several smaller routing matrices.

vision mixer

European term for video production switcher.

VITC

Vertical interval time code. Time code encoded into the vertical interval of the video. It usually can be read out even when a VTR is still-framed or running at slower or faster than play speed.

VITS (vertical interval test signal)

A signal that may be included during the vertical blanking interval to permit on-the-air testing of video circuit functions and adjustments.

VMS

Voice messaging services.

voltage regulator

A circuit used for controlling and maintaining a voltage at a constant level.

VPN

Virtual Private Network.

VSD

Video status display.

VTR

Videotape recorder.

VU meter

Volume-unit meter, a type of meter used to indicate average audio amplitude.

W**W**

Watt.

WAN

Wide area network.

WARC

World Administrative Radio Conference.

warm start

to reboot a system without turning power off.

wash

See *background wash*.

watt (W)

watt (W)

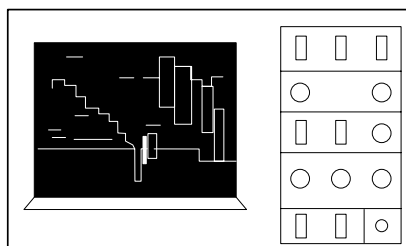
A measure of electrical power. The power expended when 1 ampere of direct current flows through a resistance of 1 ohm. The unit of electric power required to do work at the rate of 1 joule per second. Calculated by multiplying volts times amperes.

waveform

The shape of an electromagnetic wave. A graphical representation of voltage or current in relation to time.

waveform monitor

A device used to examine the video signal and synchronizing pulses. An oscilloscope designed especially for viewing the waveform of a video signal.



Waveform Monitor

waveguide

A system of material designed to direct confined electromagnetic waves in a direction determined by its physical boundaries.

wavelength division multiplexing (WDM)

In telecommunications, a means of increasing the information-carrying capacity of an optical fiber by simultaneously transmitting different wavelengths.

wavelength of peak radiant intensity

In telecommunications, the wavelength at which the spectral distribution of radiant intensity is at maximum.

Wavelink®

GVG system for short-haul fiber optic transmission of video, audio, and data.

weighted

Correction factor applied.

WF Monitor

See *waveform monitor*.

white bar (white level, reference white)

See *video gain*.

white balance

See *color balance*.

white clipper

A circuit that clips off any signal above a specified video level.

white level (white bar, reference white)

See *video gain*.

white peak

The maximum excursion of the video signal in the white direction at the time of observation.

wide bandwidth

Capable of passing a broad range of frequencies.

wideband

See *wide bandwidth*.

window

1. Video containing information or allowing information entry, keyed into the video monitor output for viewing on the monitor CRT. A window dub is a copy of a videotape

with time code numbers keyed into the picture. 2. A video test signal consisting of a pulse and bar. When viewed on a monitor, the window signal produces a large white square in the center of the picture. 4. A graphical user interface that presents icons and tools for manipulating a software application. Most applications have multiple windows that serve different purposes.

wipe

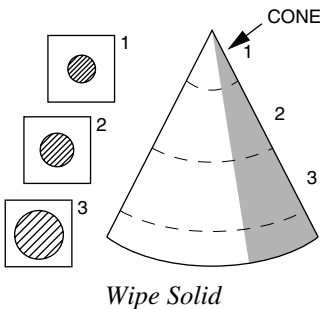
A transition between two video signals that takes the shape of a geometric pattern.

wipe generator

An electronic device that produces video wipe transition control signals. May be a standalone device or part of a production switcher.

wipe solid

A wipe pattern control signal whose voltage mathematically represents a three-dimensional geometric shape. The shape of the wipe solid varies depending on the wipe pattern being generated. For example, a circle pattern is generated from a cone-shaped wipe solid.



woof

A verbal signal between engineers meaning to "stop adjusting."

word

See *byte*.

work print

A videotape which is created as a result of an off-line editing session.

working buffer

In digital picture manipulators, the memory space where a copy of the current key frame effect is held so that the user can modify it.

working key frame

The key frame under construction.

working register

The memory location in which an effect under construction is stored.

wow and flutter

Wow refers to low-frequency variations in pitch while flutter refers to high-frequency variations in pitch caused by variations in the tape-to-head speed of a tape machine.

WYSIWYG

What you see is what you get. The final product looks exactly like what you see on a monitor.

X

X-axis

The horizontal axis in a system of multidimensional coordinates. See *axis*.

XEDL™

An optional GVG editor program for edit list translation and serial input/output.

XFMR

transformer.

XGPI

External General Purpose Interface.

XMTR

XMTR

Transmitter.

XPT

Crosspoint.

XTALK

Crosstalk.

X-Y

In routing switchers, refers to a switching matrix model that places inputs (sources) on an X axis and outputs (destinations) on a Y axis. Routing connections are made by specifying an X value (input number) to be connected to a Y value (output number). Using this scheme, any available source can be connected to any available output.

X-Y panel

A routing switcher control panel that uses the X-Y model for making crosspoint selections.

Y

Y (luminance)

1. The luminance (brightness) portion of a video signal, especially component video. The formula for deriving Y from the red, green, and blue signals is $.30R + .59G + .11B$. 2. Abbreviation for admittance, which is the reciprocal of impedance, the ease with which alternating current flows through a circuit.

Y, Cr, Cb

Color difference signal designation used for various purposes, such as the CCIR/SMPTE standard digital component video signal set (CCIR601, RP-125). Y corresponds to

luminance, Cr corresponds to the R-Y signal, and Cb corresponds to the B-Y signal.

yellow signal

In telecommunications, a signal sent back in the direction of a failure, indicating that the input of a network element has failed. The yellow signal varies with the DS framing used.

Y, Pb, Pr

Color difference signal designation. Y corresponds to the luminance signal, Pb corresponds to the scaled B-Y color difference signal, and Pr corresponds to the scaled R-Y color difference signal.

Y, R-Y, B-Y

Color difference signal designation. Y corresponds to the luminance signal, R-Y corresponds to the red minus luminance signal, and B-Y corresponds to the blue minus luminance signal. These signals are derived as follows:

$$Y = 0.3\text{Red} + .59\text{Green} + .11\text{Blue}$$

$$R-Y = 0.7\text{Red} - 0.59\text{Green} - 0.11\text{Blue}$$

$$B-Y = 0.89\text{Blue} - 0.59\text{Green} - 0.3\text{Red}$$

Y to C delay

Relative delay or timing of the luminance channel compared to the chrominance channel in a video system.

Y, U, V

PAL luminance & color difference components. U and V are the names of the B-Y and R-Y color difference signals (respectively) when they are modulated onto subcarrier.

Y-axis

The vertical axis in a system of multi-dimensional coordinates. See *axis*.

Y/C delay

See *Y to C delay*.

YIQ

NTSC and M-Format luminance and color difference components.

Z

Z

Impedance.

Z-axis

The Z axis is in the third dimension, perpendicular to the X and Y axes and indicates depth. See *axis*.

zero dispersion point

In telecommunications, the wavelength where material dispersion is minimal. With standard fiber optic cable, that wavelength is 1310 nanometers.

zero suppression

In telecommunications, techniques that limit the number of consecutive data 0's that may be transmitted. For DS1 without B8ZS, fifteen data 0's are the maximum allowed.

zero timing point

The point at which all the video signals must be in synchronization (typically the switcher input).

zero-crossing of subcarrier

The zero voltage point of subcarrier (the point where the waveform passes through zero volts).

Numerals

110 Analog Video Switcher

A compact, low-cost analog video switcher made by Grass Valley. Widely recognized as the industry standard for small switchers.

1000/1200 Digital Video Switchers

Compact yet full-featured component digital video switchers made by Grass Valley.

20-TEN™

Grass Valley one rack-unit routing switcher with 20 inputs and 10 outputs.

200/250 Series Switchers

A series of multiple M/E production and post production analog and analog component video switchers made by Grass Valley. The standard by which other analog switchers are measured.

3.58MHz

The approximate frequency of the subcarrier used in NTSC video to carry the color information. The actual frequency is 3.579545 MHz ± 10 Hz.

3000 Digital Video Switcher

A powerful, multiple M/E composite digital video switcher made by GVG.

3800 Impedance Conversion Modules

A series of GVG video balun modules for converting between balanced and unbalanced 75 ohm or 124 ohm video cable.

4.43 MHz

4.43 MHz

The approximate frequency of the subcarrier used in PAL video to carry the color information. The actual frequency is 4.43361875 MHz \pm 5 Hz.

409

Grass Valley Group editor program that automatically cleans the edit decision list to eliminate overlapping edits.

4000 Component Digital Switcher

A top-of-the-line multiple M/E component digital video switcher made by GVG.

4-field sequence

See *color field*.

4fsc

Four times the frequency of SC (subcarrier). The sampling rate of a D2 digital video signal with respect to the subcarrier frequency of an NTSC or PAL analog video signal. The 4fsc frequency is 14.3 MHz in NTSC and 17.7 MHz in PAL.

4:2:2

A commonly-used term for a component digital video format. The details of the format are specified in the ITU-R BT.601-2 standard document. The numerals 4:2:2 denote the ratio of the sampling frequencies of the single luminance channel to the two color difference channels. For every four luminance samples, there are two samples of each color difference channel. See *ITU-R BT.601-2*.

4:2:2:4

Same as 4:2:2 but with the addition of a key channel which is sampled four times for every four samples of the luminance channel.

4:4:4

Similar to 4:2:2 except that for every four luminance samples, the color channels are also sampled four times.

4:4:4:4

Similar to 4:2:2:4 except that for every four luminance samples, the color and key channels are also sampled four times.

7000 Signal Management System

A sophisticated serial digital video and AES/EBU digital audio routing switcher made by Grass Valley. Capable of controlling component and composite analog video/audio and serial component and composite digital video/audio within the same frame. Offers frame sizes from 16 x 16 to 128 x 128 with expansion up to 1024 x 1024.

SMS 8000 Systemization

Products

A series of compact digital-to-analog and analog-to-digital video converters made by Grass Valley.

8-field sequence

See *color field*.

8281

A commonly-used type of precision, double-shielded, 75-ohm video cable manufactured by Belden Wire & Cable Company.

8500/8800 Distribution

Amplifiers

Modular video distribution products made by Grass Valley.

90W Wideband IM Fiber Optic System

A cost-effective fiber distribution system for wide bandwidth (HDTV) video.

MAX 900 Analog Systemization Products

A series of modular component analog video distribution, translation, source selection, and timing/delay products made by Grass Valley.

MAX 9000 Digital Systemization Products

A series of modular digital video and AES/EBU audio products made by Grass Valley. Available modules

include serializers, deserializers, line delays, multiplexers, demultiplexers, distribution amplifiers, and D/A and A/D converters.

9500 Series Sync Generators

A series of synchronizing generators made by Grass Valley.

