



## GLOSSARY OF TERMS



**ANSI lumens:** A standard for measuring light output, used for comparing projectors. Unfortunately, there are enough variables that the eye will often disagree radically with the ANSI rating. At best, ANSI lumens do fairly well comparing "apples" to "apples". If however one projector uses Halogen lamps and another metal-halide, the halogen projector will seem noticeably dimmer even if the two units rate the same. Other

variables, including type of LCD technology (active matrix TFT, Poly-Si, passive), type of overall technology (LCD vs. DLP vs. CRT vs DMD vs Lycos), contrast ratios, etc. all effect the end result.

**Aspect ratio:** Currently, the most popular aspect ratio is 16:9 (16 by 9). Early television and computer video formats are in a 4:3 aspect ratio, which means that the width of the image is 4/3 times the height. Examples: A 15 inch monitor is 12 inches wide by 9 inches high ( $9 \times 4/3 = 12$ ). A resolution of 640x480 is a 4:3 format ( $480 \times 4/3 = 640$ ). Other formats are 5:4 used by the 1280x1024 SXGA resolution, 16:9 is used by HDTV, and 3:2 for 35mm slides.

**Aspheric Mirrors:** Aspheric mirror projection is used in NEC's WT series to achieve large-screen projection with an ultra-short focal distance, meaning the projector can be placed directly at the foot of the screen.

**Brightness:** The attribute of visual perception in accordance with which an area appears to emit more or less light. (Luminance is the recommended name for the photo-electric quantity which has also been called brightness.)

**Colour Dynamics:** "The whitest whites, reddest reds, etc." High colour dynamics are a result of dynamic range/contrast ratio's. When we describe a unit as having excellent colour dynamics, the practical description might be "rich colours, excellent definition, high contrast".

**Component Video:** Component Video is a method of delivering quality video (RGB) in a format that contains all the components of the original image. These components are referred to as luma and chroma and are defined as Y'Pb'Pr' for analogue component and Y'Cb'Cr' for digital component. Component video is available on some DVD players and projectors.

**Composite Video Signal:** The combined picture signal, including vertical and horizontal blanking and synchronizing signals.

**Contrast Ratio:** The ratio between white and black. The larger the contrast ratio the greater the ability of a projector to show subtle colour details and tolerate extraneous room light.

**dB:** dB or decibel is a measure of the power ratio of two signals. In system use, a measure of the voltage ratio of two signals provided they are measured across a common impedance.

**Diagonal Screen:** A method of measuring the size of a screen or a projected image. It measures from one corner to the opposite corner. A 9FT high, 12FT wide, screen has a diagonal of 15FT. Throughout this document we assume that the diagonal dimensions are for the traditional 4:3 ratio of a computer image as per the example above. Some screens are square, others particularly wide for 35mm slides 3:2 ratio. As such even if the screen is 12x12, we would rate it 15FT diagonal since that would be the diagonal of the usable area.

**Digital Light Processing (DLP):** The commercial name for this technology from Texas Instruments (TI). The technology inside is often referred to as either "micro-mirrors", or DMD.

**D-ILA:** D-ILA stands for Direct Drive Image Light Amplifier. D-ILA is JVC's high performance liquid crystal display device which supports high resolution, high brightness and large display sizes.

**DVI:** DVI means Digital Visual Interface. DVI is a standard that defines the digital interface between digital devices such as projectors and personal computers. For devices that support DVI, a digital to digital connection can be made that eliminates the conversion to analogue and thereby delivers an unblemished image.

**International Power Supply:** A unit that can operate under a international selection of power requirements. The specs of units vary widely, but the minimum is 105-230 volts, and 50-60 cycles AC (alternating current). If you see a specification like 110v, 220v instead of a range, those ratings are usually +/- a given percent such as 10%. Some units are "self-switching" they will automatically switch to whatever power source you plug it into. Others will have to be switched (internally or externally to accommodate a difference voltage or cycle range).

**Keystone Correction:** Using optics design or other methods to apply a "negative" keystone to the image, which will partially cancel the effects of keystone. If you aim a projector with keystone correction at a screen with the lens on a level with the middle of the screen, you will note that the image at the bottom is wider than at the top. When the projector is in normal position, pointing upward 10-25 degrees, the resulting image is fairly rectangular. Some of today's projectors offer "Auto Keystone correction" which works very successfully, saves time and prevents the ordeal of tricky adjustment.

**Keystoning:** Keystoning is caused when the projected image is not perpendicular to the screen, making the top and bottom of the image different lengths.

**LCD:** LCD stands for liquid crystal display and comes in many forms, sizes, and resolutions. Its primary purpose is to present a digital image for viewing. A common use of LCDs is as a display on a notebook computer.

**Lens Shift:** The Lens Shift feature of a projector allows the optical lens to be physically shifted up and down (Vertical) or left and right (Horizontal). Most all lens shift mechanisms are motorized with vertical lens shift being the most popular. With a projector that has lens shift you can optically correct for keystone distorted images. It is also used to help geometrically align images when stacking projectors.

**Long Throw Lens:** A lens designed for projection from the back of a room, or rather the back of a long room. Long throw lenses would be used in a projection booth in the back of a theatre, etc. A typical long throw lens might have to be 50 to 100 FT back to project a 10FT diagonal image.

**Maximum Distance:** Sometimes, rarely, the distance from the screen that a projector can focus the image. Most of the time, it is the manufacturer's opinion of how far from a screen the projector can be to cast an image that is useable (bright enough) in a fully darkened room. Generally this is very subjective. One projector might quote a distance that allows them to produce a 25FT diagonal image, while another, brighter projector might quote a distance that only equates to a 20FT image. Beware!

**Metal Halide Lamp:** The type of lamp used in many medium and all high ends portable projectors. These lamps typically have a "half-life" of 1000-2000 hours. That is they slowly lose intensity (brightness) as they are used, and at the "half-life" point, they are half as bright as when new. These lamps output a very "hot" temperature light, similar to mercury vapour lamps used in street lights. Their whites are "extremely" white (with slight bluish cast.) and make Halogen lamp's whites look very yellowish by comparison.

**NTSC:** The United States broadcast standard for video and broadcasting. An older standard and lower resolution than systems used in most of the world.

**RGB:** Red, Green, Blue; the normal type of monitor used with computers. Example of usage: RGB input or output often referred to as Computer input or output.

**S-Video:** A video transmission standard that uses a 4 pin mini-DIN connector to send video information on two signal wires called luminance(brightness, Y) and chrominance(colour, C).

**SECAM:** A French and international broadcast standard for video and broadcasting. Higher resolution than NTSC.

**Short Throw Lens:** A lens designed to project the largest possible image from short distance. Most front room projectors use short throw lens. They are often required for rear projection, where the depth behind the screen is limited. A typical short throw lens might produce a diagonal image size of 10 FT, from a distance of 7 to 10 FT.

**SVGA:** SVGA is used to define a specific display resolution. Resolution is defined by the number of individual dots that a display uses to create an image. These dots are called pixels. An SVGA display has 800 horizontal pixels and 600 vertical pixels giving a total display resolution of 480,000 individual pixels that are used to compose the image delivered by a projector.

**SXGA:** SXGA is used to define a specific display resolution. Resolution is defined by the number of individual dots that a display uses to create an image. These dots are called pixels. An SXGA display has 1280 horizontal pixels and 1024 vertical pixels giving a total display resolution of 1,310,720 individual pixels that are used to compose the image delivered by a projector.

**UXGA:** UXGA is used to define a specific display resolution. Resolution is defined by the number of individual dots that a display uses to create an image. These dots are called pixels. A UXGA display has 1600 horizontal pixels and 1200 vertical pixels giving a total display resolution of 1,920,000 individual pixels that are used to compose the image delivered by a projector.

**VGA:** VGA is used to define a specific display resolution. Resolution is defined by the number of individual dots that a display uses to create an image. These dots are called pixels. A VGA display has 640 horizontal pixels and 480 vertical pixels giving a total display resolution of 307,200 individual pixels that are used to compose the image delivered by a projector.

**WSXGA:** WSXGA defines a class of SXGA displays with a width resolution sufficient to create an aspect ratio of 16:9. Resolution is defined by the number of individual dots that a display uses to create an image. These dots are called pixels. A WSXGA display has 1920 to 1600 horizontal pixels and 1080 to 900 vertical pixels respectively that are used to compose the image delivered by the projector.

**WXGA:** WXGA defines a class of XGA displays with a width resolution sufficient to create an aspect ratio of 16:9. Resolution is defined by the number of individual dots that a display uses to create an image. These dots are called pixels. A WXGA display has 1366 to 1280 horizontal pixels and 768 to 720 vertical pixels respectively that are used to compose the image delivered by the projector.

**XGA:** XGA is used to define a specific display resolution. Resolution is defined by the number of individual dots that a display uses to create an image. These dots are called pixels. An XGA display has 1020 horizontal pixels and 768 vertical pixels giving a total display resolution of 783,360 individual pixels that are used to compose the image delivered by a projector.

**Zoom Lens:** A lens with a variable focal length providing the ability to adjust the size of the image on a screen by adjusting the zoom lens, instead of having to move the projector closer or further.

**Zoom Lens Ratio:** Is the ratio between the smallest and largest image a lens can project from a fixed distance. For example, a 1.4:1 zoom lens ratio means that a 10 foot image without zoom would be a 14 foot image with full zoom. Conversely, a 10 foot diagonal image at 15 feet with no zoom would still be a 10 foot image at 21 feet at maximum zoom ( $15 \times 1.4 = 21$  feet). A zoom lens is "not as bright" as a fixed lens, and the higher the ratio, the less light output.