

Local No.4, IATSE Study Guide



Commonly Used Theatrical Lighting Terms

A:

ACE: a 1K Fresnel light.

ADAPTER: a device used to convert from one type of connector to another.

AERIAL LIFT: one of a variety of different lifts or telescoping boom arm vehicles commonly used as a high lighting platform for large exterior shots. commonly called a condor or snorkel lift, which are trade names.

APPLE BOX: a reinforced plywood box used on the set for many purposes. Apple boxes come in four (4) sizes; full, half, quarter, and pancake.

ARC LIGHT: any light that makes light by forming a arc, such as HMI's. on a set an arc light is normally understood to mean a carbon arc light.

AWG: American Wire Gauge.

B:

BABY: a 1k Fresnel lighting fixture manufactured by Mole-Richardson Co.

BALLAST: a power supply required to operate and discharge light, such as a HMI, fluorescents, and xenon lights. The ballast provides the ignition charge and then acts as a choke, regulating the power to maintain the arc.

BARN DOORS: metal shields on a ring that mounts to the front of a lighting fixture. Barn doors are used to shape and control the beam of light.

BATTEN: usually refers to a 1" x 3" piece of lumber. May also refer to pipe on which lights, scenery, blacks, and borders can be hung.

BEAM ANGLE: the diameter of the beam angle is defined as the area of the light field that is 50% or more of the peak intensity of the beam.

BEAM PROJECTOR: a type of lighting fixture that employs a large parabolic mirror reflector to create relatively strong, parallel rays of light.

BEST BOY: the assistant chief lighting technician. The bet boy is the gaffer's administrative assistant.

BLACK WRAP: a thick, durable black foil used on hot lights to control spill and to shape the beam.

BROAD: a nonfocusing, wide angle lighting fixture, typically using a double ended bulb, installed in a rectangular fixture with a silver reflector.

BULL SWITCH: a main switch used on the main feeder or a sub feeder lin

BUSS BAR: copper bars in distribution equipment, such as spider boxes, to which lug connectors are attached.

C;

CAM LOCK: a type of single-conductor connector used for feeder cable.

CARBON ARC LIGHT: a very bright DC lighting fixture that creates light by igniting an arc flame between two (2) carbon electrodes.

CAT 5 CABLE: high-speed digital communication cable commonly used for computer networks: also sometimes used for DMX512 networks.

CHANNEL: device controlling a dimmer or group of dimmers. In a simple system, there is a slider for each channel. On most current control systems, channels are numbers, accessed by a numeric keypad. Multiple dimmers may be controlled by a single channel to which they are patched.

CIRCUIT BREAKER: an overcurrent protection switch. It trips and disconnects a circuit if the current drawn exceeds the rating of the circuit breaker.

CIRCUIT: (1) When talking about dimmer circuits, refers to everything downstream of the dimmer, from the dimmer's output connector to the lighting fixtures themselves. (2) Generally, an electrical circuit is one that has a continuous path from the power source, through the load and back to the power source.

COLOR TEMPERATURE: a temperature expressed in Kelvin (K) that defines the color makeup of light emitted by a source, such as the sun or a filament lamp, that has a continuous color spectrum.

CONDOR: a vehicle with a telescoping boom arm used as a platform to position lights 30-120 ft. in the air.

CONTINUITY TESTER: a device that runs a small amount of voltage through a conductor and lights an indicator or makes a sound if the conductor is continuous.

CONTINUITY: (1) Electrical continuity: the unbroken flow of electricity through a conductor or lamp filament. (2) script continuity (the job of the script supervisor): the task of making sure

that all the details of the scene remain consistent from take to take and from angle to angle. shots may be filmed hours and even weeks apart, but they will be cut back to back in the final film.

CONTROL CONSOLE: a computerized controller that provides a user interface and generates a control signal to transmit data to devices on a lighting control network, such as a DMX512.

CRANK-UP STAND: a heavy-duty stand that provides a crank to raise and lower heavy lights.

CROSS-FADE: a fade that contains both an up-fade and down-fade. Also may refer to any fade where the levels of one cue are replaced by the levels of another cue.

C-STAND: a multipurpose stand used for setting flags and nets. Short for Century stand.

CTB GEL: a blue gel that corrects a tungsten source to daylight.

CTO GEL: an orange gel that corrects a daylight source to tungsten.

CUBE TAP: a device that allows three Edison plugs to plug into one Edison socket.

CUE LIGHT: a flashing or rotating light positioned outside the set to warn people when the camera is rolling.

CUE: the process of recalling a preset from its memory location (in a control console) and putting the result on stage.

CURRENT: the rate of flow of electricity measured in amperes.

CYC STRIP: a strip of open-face fixtures used to light a cyclorama. The lights are often wired in two, three, or four separate circuits to provide individual control of different colors.

CYLORAMA: a seamless hanging or set piece, usually white, often curved where it meets the floor. It is used to create a limbo background, having no discernible horizon or texture.

D:

DEUCE: a 2k Fresnel light.

DIFFUSION: material used in front of lighting fixtures to soften the light.

DIMMER: the device controlling power to a circuit and lighting fixtures. Two lights on one dimmer circuit cannot be separately controlled.

DIRECT CURRENT (DC): current that does not alternate polarity. Batteries create DC.

DMX512 DATA LINK: the connection point of the DMX512 signal cable to a controller. Each data link supplies one universe (512 slots) of data, refreshed 44 times/second. For DMX512, this is commonly a 5-pin XLR connector, but modern controllers also use RJ-45 connectors for either DMX512 or Ethernet communications.

DMX512 UNIVERSE: a DMX512 universe comprised 512 sequential data slots. A universe is sometimes thought of as a single DMX512 data link, and all devices connected to it.

DMX512: lighting control network protocol.

DOUSER: the mechanism on a follow spot used to make a quick blackout without the operator having to extinguish the light itself. On a carbon arc follow spot, the douser protects the lens while the arc is struck.

DRESS A LIGHT: to neaten up the light or cable.

DUVETYN: thick, black cloth used to block light.

E:

EARS: the metal brackets on the front of a light that hold the barn doors and scrims.

EDISON PLUG AND SOCKET: a typical household plug and socket with two parallel blades and a U-shaped grounding pin. Also called a U-ground parallel-blade plug.

EGG CRATE: an accessory for a soft light fixture that cuts stray light and narrows the beam angle.

ELLIPSOIDAL REFLECTOR SPOTLIGHT: (ERS) a spotlight of fixed or adjustable focal length that has framing shutters and a projection gobo slot and produces a long, narrow throw of light. Also called a Leko.

ESTA: the Entertainment Services and Technology Association, responsible for many initiatives within the entertainment industry, including developing DMX512-A as an ANSI standard and other forward thinking testing for entertainment electricians, among other things.

ETHERNET: a high-speed network protocol designed for communication between computers and devices, also used in lighting control.

F:

FADE: a gradual change in stage levels from one set of intensities ("look:") to another.

FEEDER CABLE: large single-conductor cable used to run power from the power source to the set.

FILAMENT: the tungsten coil inside a bulb that glows when voltage is applied to it, creating light.

FLOOD: the spread of the beam from a fixture that is broad and relatively weak.

FOCAL LENGTH: the distance from a lens at which an image comes into focus (the focal point). For camera lenses, it is usually expressed in millimeters. Along lens has a very narrow angle of view and a short depth of field. A short lens has a wide angle of view and greater depth of field.

FOCAL SPOT: an accessory that mounts on a Fresnel fixture, essentially changing the fixture into an ellipsoidal spotlight.

FOLLOW SPOT: a high-power, narrow-beam spotlight suitable for very long throws. It is designed to follow performers on stage.

FRESNEL: (1) A type of lens that has the same optical effect as a plano-convex lens but has reduced weight and heat retention. (2) The light fixture that uses a Fresnel lens.

FURNITURE CLAMP: an adjustable clamp used for mounting lights.

G:

GAFFER: the head of the lighting crew. The gaffer works directly under the director of photography.

GATOR GRIP: a baby stud on a spring-loaded clamp with rubber jaws, used for mounting lightweight fixtures to doors, poles, furniture, and so on.

GENERATOR: the power plant used to create power on location. Motion picture generators are sound-baffled and provide bus bars or other common feeder connectors.

GFCI, GFI: see ground fault circuit interrupter.

GHOST LOAD: a load not used to light the set and placed on a circuit to balance the various legs of power or to bring the load on a resistance-type dimmer up to its minimum operating wattage. Also called dummy load and phantom load.

GRID: (1) A transformer unit used with a carbon arc light. (2) The structure of metal pipes suspended above the stage floor for hanging lighting fixtures.

GRID CLAMP: a clamp that attaches to grid pipe.

GROUND FAULT CIRCUIT INTERRUPTER (GFCI): a special type of circuit protection required around water, pools, and in wet locations, that detects leakage current--current not returning to the power source that could pose a hazard.

GROUNDING WIRE: the green, noncurrent-carrying equipment grounding wire of an AC circuit.

GROUND ROW: cyclorama lights placed along the ground at the base of the cyc. A mask normally hides the lights from view.

H:

HMI: see mercury (Hg) medium-arc iodide. Trade name of Osram's metal halide arc lamps.

HOT SPOT: (1) The beam center. (2) As shiny spot or glare reflection that is distracting to the eye.

HOUSE LIGHTS: the permanent lighting in the audience area of a theater or sound stage.

I:

INCANDESCENT : any type of electric light that creates light by making a metallic filament (usually tungsten for film lights) glow by applying current to it.

INCIDENT LIGHT METER: a light meter that reads the light falling onto the face of the meter.

IRIS: the mechanism on a follow spot that adjusts the diameter of the beam.

J:

JUNIOR: a 2k Fresnel fixture.

K:

K: Kelvin (temperature scale). Used to define the color temperature of light.

KEY LIGHT: the main source lighting the subject.

L:

LEKO: Leko is a trademark of Strand's ellipsoidal reflector spotlight.

LIGHT PLOT: a drawing depicting the layout of the lights and lighting positions.

LOUVERS: thin, parallel strips with a black finish arranged in a grid pattern that is placed in front of a soft light source. Louvers reduce spill light and direct the light in one direction.

LUG: an extremely heavy-duty brass connector that bolts feeder cables to bus bars, deuce boards, and spiders. Also called sister lugs.

LUMEN: a unit of light (flux).

M:

MERURY MEDIUM-ARC IODIDE (HMI): a type of gas discharge bulb with a color temperature of 5600 K and high efficiency of more than 90 lumens/W.

MINI: (1) A 100 or 200 W Fresnel fixture manufactured by Mole-Richardson, or a miniature soft light manufactured by LTM. (2) Minnie: Girlfriend of Mickey, manufactured by Walt Disney.

N:

NOOK LIGHT: a small, lightweight open-face fixture that typically uses a double-ended bulb and a V-shaped reflector.

O:

OPTO-SPLITTER: an optically isolated signal amplifier that reads and regenerates a DMX512 control signal and outputs it to multiple output connectors.

OSHA: Occupational Safety and Health Administration.

P:

PARABOLIC REFLECTOR: a reflector shaped like a parabola, giving it a focal point from which all light rays will be reflected outward in a parallel beam.

PARALLEL CIRCUIT: the connection of two or more fixtures across the same conductors of a circuit such that current flow through each is independent of the others.

PAR CAN: A rugged fixture used often in rock-and-roll concerts. A PAR can is simply a PAR globe mounted in a cylindrical can that provides a slot for colored gel.

PATCH: historically, the process of physically connecting circuits to dimmers. Now usually refers to electronic assignment of dimmers to channels. Patch does not refer to the assignment of channels to cues or submasters.

PIGEON PLATE: a baby nail-on plate.

PIPE CLAMP: a clamp used to hang a light from an overhead pipe.

PLANO-CONVEX: a lens that is flat on one side and convex on the other. Light comes from the flat side and converges or diverges as it passes through the lens, in proportion to the lamp's distance to the lens.

POLARITY: the orientation of the positive and negative wires of a DC circuit or the hot and neutral wires of an AC circuit. a polarized plug cannot be plugged in with reversed polarity.

POLE CATS: lighting support equipment consisting of extendible metal tubes that wedge between two walls or between floor and ceiling to which lights can be mounted.

POWER: the total amount of work, measured in watts. The term is also generally understood as electricity, or juice.

PREFOCUS BASE: the type of lamp base.

PRIMARY COLORS: for light, red, blue, and green. When the primary colors of light are projected onto a white surface, the area where all three colors intersect theoretically make white light.

R:

RECEPTACLE: a female connector or female mounting hardware.

REFLECTORS: silver-covered boards typically used to bounce light, usually sunlight. Also called shiny boards.

RHEOSTAT: a resistance dimmer.

S:

SANDBAG: a sand-filled bag used to stabilize stands and equipment by adding deadweight or counterweight.

SCOOP: a lighting fixture that consists of a large 1k or 2k bulb mounted in a reflector. scoops are used for general area light.

SCR: silicone-controlled rectifier. A type of AC dimmer circuit used by a forward phase control dimmer to vary the duty cycle by switching off the circuit at a (variable) point in each half-cycle.

SCRIM: a circle of wire mesh, which slides into the ears on the front of a fixture and reduces the intensity of the light. A single dims the light about a half-stop. A double dims it about one stop. A half-single or double affects only half of the beam.

SECONDARY COLORS: the colors formed by combining two primary colors. Also called complementary colors.

SHUTTER: in a motion picture camera, a butterfly-type device that spins in front of the aperture plate.

SHUTTERS: A device that is mounted at the front of a light to douse the light using Venetian blind-like metal slats.

SLOT: the DMX512 control protocol provides 512 data slots in each universe. Each slot supplies a device with an 8-bit value (a number between 0 and 255), which may be used to control a parameter of that device.

SNOOT: a black metal cylinder or cone mounted on the ears of a fixture to narrow the beam.

SOCAPEX: commonly used to refer to 19 pin compatible connectors, sometimes also called a multipin connector.

SPOT: a beam focused into a narrow, relatively strong beam of light.

STRIKE: (1) To dismantle a set or to take down and put away a piece of equipment. (2) When referring to an HMI, to strike the light can mean to turn it on.

STROBE LIGHT: a light that creates short, bright, regular flashes of light at an adjustable speed.

SUBMASTER: a controller (usually a linear slider) on a dimmer board that allows manual control of groups, effects, cues, or channels.

T:

THREE-PHASE: a three-phase power source creates alternating current in three leads--the AC cycle of voltage in each lead is a third of a cycle (120 degrees) apart from the last. A three-phase power source may be used to power single-phase loads of different voltages by using two of the phase wires, or one phase wire and a neutral wire. A three-phase load is one that requires

all three phase wires. Examples of three-phase loads used in lighting include some xenon ballasts, chain motors, Luminys SoftSun, and 480 V step-down transformers.

THROW: the distance at which a fixture can effectively light a subject.

TIE-IN: the connection of distribution cables to a facility's service panel.

TRUSS: a metal structure designed to support a horizontal load over an extended span. Truss is used to support lighting fixtures aloft.

TUNGSTEN COLOR TEMPERATURE: a color temperature of 3200 K.

TUNGSTEN HALOGEN LAMP: a lamp designed to maintain an almost constant color temperature and a high lumen output throughout its life. The halogen cycle is a regenerative process that prevents the blackening of the inside of the bulb.

TURNAROUND: the time between the time you go off the clock on one day and call time on the next.

U:

UL: Underwriters Laboratories. An agency that tests electrical equipment. A qualifying piece of equipment referred to as "UL listed".

UP-FADE: the portion of a fade that involves only channels that are increasing in level.

USITT: United States Institute for Theater Technology. The body that created the DMX512 system.

V:

VEAM CONNECTOR: VEAM Litton is a manufacturer of connectors, including multipin HMI head feeder connectors and single-conductor feeder cable connectors.

VOLT (V) : a unit of electrical force. One volt is required to force 1 A of electricity through a resistance of 1 Ω (ohm).

W:

WATT: a unit of electrical power, the product of voltage and amperage

WIRELESS DMX: a system of transmitters and receivers used to transmit a lighting control signal using radio waves in the 2.4 GHz range.

X:

XENON LIGHTS: an extremely bright type of arc discharge light that has a color temperature of 5600 K. Because the arc is very small, the light can be channeled into a very narrow shaft of extremely bright light.

Z:

ZIP CORD: two-wire, 18 -AWG electric lamp cord.

NOTES

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