



LIGHTING DICTIONARY

AMPERE (AMP) - The unit used to measure the strength of an electric current.

ARC - The luminous discharge of electricity between two electrodes in HID lighting.

BALLAST - An auxiliary piece of equipment designed to start and to properly control the flow of power to gas discharge light sources such as fluorescent and high intensity discharge lamps. For HID lighting the ballast comes separate to the bulb and reflector. We stock the magnetic Maxibright IPAC and compact ballasts or the Lumatek digital ballasts. For 1000w lighting systems we have the Maxibright 1000w compact ballast.

BASE - The end of the lamp that inserts into the lamp socket.

BULB - The glass outer envelope component of an HID lamp which protects the arc tube.

BURNING POSITION - The position in which a lamp is designed to be operated.

CAPACITOR - An electronic device that can store electrical charge. The capacitor is one of the main components of an HID lighting ballast. Because they can store a very strong electrical charge, capacitors can be very dangerous to someone who is unaware of this fact and opens a ballast in order to examine or repair it. If one does not know how to safely discharge the stored electricity, one should allow a trained technician to do any ballast repairs.

CFL (COMPACT FLUORESCENT LAMPS) – Come in either blue or red spectrum and we stock the 125w and 250w sizes. Produces a lot less heat than HID lighting.

COLD START TIME - The length of time required to bring an HID lamp to 90% light output from a cold condition.

COLOUR TEMPERATURE or KELVIN TEMPERATURE - The unit of measurement to express the colour (spectrum) of light emitted by a lamp.

CONVERSION BULB - A bulb of a certain spectrum type (e.g. sodium) specially designed to operate while used in the fixture/ballast of a different type (e.g. metal

halide). The most popular conversion bulbs by far are sodium conversion bulbs, which allow one to have the sodium spectrum while still using a metal halide system.

CONTACTOR – A contactor will assist your timer when your HID lighting first starts up. The surge can blow your timer if used without a contactor. Contactors can sometimes come with a built in timer or you can buy the timer separately. 3CH stocks the grasslin segments or digital timers.

DISCHARGE LAMP - A lamp that produces light by discharging an electric arc through a mixture of gases and gaseous metals.

EASY ROLLS – An automatic locking contraption which allows you to adjust the position of the reflectors to any height allowing you to lower and raise your lights with ease.

ELECTRODES - Filaments located at either end of a discharge lamp that maintain an electrical arc between them.

FIXTURE - The electrical fitting used to contain the electric components of a lighting system.

FLUORESCENT LAMP - A discharge lamp in which a phosphor coating transforms ultraviolet energy into visible light. For propagation we stock the Sunmate propagation light and the T5 Lightwaves. See also CFL.

FREQUENCY - The number of waves or cycles of electromagnetic radiation per second, usually measured in Hertz (Hz).

HALOGEN LAMP - A short name for the tungsten-halogen lamp. Halogen lamps are high pressure incandescent lamps containing halogen gases such as iodine or bromine which allow the filaments to be operated at higher temperatures and higher efficacies. While excellent for home lighting and similar applications, halogen lamps are not effective or efficient as grow lights due to their very poor spectrum (extreme far red) and high operating temperatures.

(HID) HIGH-INTENSITY DISCHARGE LAMP - A general term for mercury, metal halide and high-pressure sodium lamps. HID lamps contain compact arc tubes which enclose various gases and metal salts operating at relatively high pressures and temperatures.

(HPS) HIGH-PRESSURE SODIUM LAMP - High-pressure sodium lamps operate by igniting sodium, mercury and xenon gases within a sealed ceramic arc tube. Sodium lamps emit light energy in the yellow/red/orange regions of the spectrum; the red spectrum stimulates flowering and fruit production. Many indoor gardeners switch to sodium lamps when it is time to induce flowering or fruiting of their plants.

HOT SPOT (in this case relative to bulb and not reflective material) - The area

immediately under an HID lamp where the light intensity is strongest, hot spots cause uneven growth, but can be remedied by using light movers or air-cooling the encased hood.

IGNITOR - A component of the ballast necessary for the starting of the bulb in sodium systems.

INCANDESCENT LAMP - A light source which generates light utilizing a thin filament wire (usually of tungsten) heated to white heat by an electric current passing through it. Incandescent lamps are the most familiar type of light source, with countless application in homes, stores and other commercial settings. Light is produced by passing electric current through a thin wire filament, usually a tungsten. Incandescent lamps are totally ineffective as grow lights; they have very limited spectrum, are very inefficient in their conversion of electrical power to light output they also put off far too much heat per watt to use in horticulture, even if the above-mentioned problems did not exist.

INTENSITY - A term referring to the magnitude of light energy per unit; light intensity diminishes evenly as you get further from the source.

KELVIN TEMPERATURE (K) - The unit of measurement to express the colour (spectrum) of light emitted by a lamp; the absolute temperature of a blackbody radiator having a chromaticity equal to that of the light source. A standard clear metal halide HID lamp has an average Kelvin temperature rating of 4,000K.

KILOWATT (kW) - A unit of electric power usage equal to 1,000 watts.

KILOWATT HOUR (kWh) - A measurement of electric energy. A kilowatt hour is equal to 1,000 watts of power used over a period of one hour.

LIGHT MOVER - A motorized device which moves an HID lamp back and forth across the ceiling of a grow room to provide more even distribution of the light and reduce hotspots. We stock the Jupiter 2 Kits or the Light rail 3.5. Great bits of kit!

LUMEN - A measurement of light output; relative to human perception which refers to the amount of light emitted by one candle that falls on one square foot of surface located at a distance of one foot from the candle.

LUMATEK – A Premium digital electronic ballast.

(MH) METAL HALIDE LAMP - A high-intensity-discharge lamp in which the light is produced by arcing electricity through a mixture of metal halides. The light produced by metal halide lamps is in the white-blue spectrum, which encourages vegetative growth and "bushiness" while discouraging upward growth. This is the bulb to use in the first, vegetative phase of plant growth.

(MV) MERCURY VAPOUR LAMPS - The oldest member of the HID family, mercury vapour lamps work by arcing electricity through mercury vapour. While more efficient

than incandescent, halogen and fluorescent lamps, mercury vapour lamps are the least effective of the entire HID family.

PARABOLIC REFLECTOR - A lighting distribution control device that is designed to redirect the light from an HID lamp in a specific direction. In most applications, the parabolic device directs light down and away from the direct glare zone.

PHOTOSYNTHESIS - The growth process by which plants build chemical compounds (carbohydrates) from light energy, water and CO₂ (carbon dioxide).

REFLECTOR - The term sometimes used to refer to the reflective hood of an HID lamp. The adjust-a-wing and the diamond shade are both types of reflectors.

REFLECTIVITY - The measure of the reflective quality of a surface; the relative ability of a given surface to reflect light away from it without absorbing, diffusing or otherwise compromising the light's quality, intensity and spectrum.

TIMER - A device that will make any horticulturist/growers life easier. This will dictate what times your lights will go on or off.

TRANSFORMER - The component in the ballast that transforms electric current from one voltage to another.

ULTRAVIOLET (UV) LIGHT - Light with very short wavelengths, out of the visible spectrum.

WATT (W) - A unit used to measure electric power. One watt equals one joule/second.

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