

**Arc Tube:** A completely sealed quartz or ceramic tube where the electrical discharge (arc) occurs and light is generated

**Ballast:** A device that, by means of resistance, inductance, capacitance or electronic elements, singly or in combination, controls the current, voltage and waveform to the required values for proper lamp starting and operation

**Ballast Characteristic Curve:**

The curve of lamp wattage vs. lamp voltage over a range of normal lamp voltages when a HID ballast is operated at a given supply voltage

**Ballast Factor:** The ballast factor is determined by dividing the lamp power obtained when the lamp is driven by the commercial ballast by the lamp power when the lamp is driven by the reference ballast

**Ballast Power Factor:** Power consumed by the lamp and ballast (watts) divided by the product of line voltage and line current ('volt-amps' or 'VA'); It is a measure of power quality and of concern to utilities

**BTL:** The distance to ballast to lamp

**Burning Position:** The position or orientation in which lamps operate

**Cold Start Time:** The amount of time from the application of ballast voltage to ignition of the arc discharge

**Color Rendering Index (CRI or Ra):** A measure of a light source's ability to render colors relative to a standard of 100

**Constant Wattage Autotransformer (CWA) Ballast:** A magnetic autotransformer lead ballast circuit incorporating a capacitor in series with the lamp; compared to other ballasts, the CWA regulates over a wider input voltage range, holding lamp current nearly constant

**Constant Wattage Isolated (CWI) Ballast:** A magnetic lead ballast circuit incorporating a fully-isolated secondary winding; it has a capacitor in series with the lamp and the same performance features as the CWA ballast

**Correlated Color Temperature (CCT):** The perceived "color" of the light emitted by a lamp expressed in Kelvin (K) units

**Current Crest Factor:** The ratio of the peak-to-rms value of lamp current; metal halide magnetic ballast values range from 1.5 to 1.8

**Economic Life:** The number of hours a group of lamps will burn before it is economically and aesthetically advisable to group relamp (typically 60% to 75% of rated life)

**Efficacy (Lamp):** A ratio of lamp lumens to lamp power; measured in lumens per watt (LPW)

**Extinction Voltage (North America):** The RMS value of supply voltage at which a reference lamp extinguishes when the supply voltage is slowly reduced from its rated value. The ANSI procedure calls for a 2 to 3% reduction in supply voltage per second

**Fixture Requirements:** The type of fixture a lamp requires; i.e., enclosed or open rated

**Formed Body Arc Tube:** Precisely reproducible ellipsoidal arc tube formed by pressurizing molten quartz inside a mold; produces arc tubes with higher efficacy and improved color uniformity

**HID:** High Intensity Discharge lamps; includes metal halide, mercury vapor and high pressure sodium

**High-Power-Factor (HPF) Ballast:** A ballast designed so that the input power factor is not less than 90% when the ballast is operated at the rated supply voltage using an appropriate reference lamp

**High Reactance Autotransformer (HX) Ballast:** An autotransformer lag circuit that uses a magnetic shunt path between primary and secondary coils to control reactance; has operating characteristics similar to those of a reactor and has input taps to accept a wide range of supply voltages

**Hot Restart or Restrike Time:** The time from lamp extinction after a supply voltage interruption to lamp re-start

**Hybrid Ballast:** A Venture lag (magnetic) ballast designed with a low current crest factor for improved lamp performance.

**Ignitor:** An electronic device which provides, by itself or in combination with other circuit components, the appropriate electrical conditions to start a discharge lamp

**Initial Lumens:** The light output of a lamp at rated power on a reference ballast after 100 hours of operation

**Input Power:** See System Power

**Lag Ballast:** A magnetic ballast having a lagging lamp current with respect to the supply voltage. Current limiting is primarily inductive; holds lamp power reasonably constant with respect to lamp voltage variations

**Lamp Power Factor:** Power consumed by the lamp divided by the product of RMS lamp volts and RMS lamp current; It is less than unity on magnetic ballasts operating at 50 or 60 hz

# Venture's Technical Center - HID Glossary

**Lamp Voltage:** The RMS voltage at which lamps operate when they are fully warmed up

**Lamp Power:** The power consumed by a lamp after warm-up, measured in watts

**Lamp Regulation:** The ratio of lamp power to lamp voltage often expressed in graphical format

**Lead Ballast:** A magnetic ballast having a leading lamp current with respect to the supply voltage; current limiting is accomplished by means of an inductor as well as a capacitor connected in series with the lamp; this includes CWA and CWI ballasts

**Light Center Length (LCL):** The distance from the center of the visible arc discharge to the bottom contact of the base

**Line Regulation:** The ratio of lamp power to ballast input voltage often expressed as a percentage

**Lumens:** A measurement of light; takes into account the human eye sensitivity curve so that more weight is given to the yellow-green part of the light spectrum (photopic)

**Lumen Maintenance:** The lumen output of a lamp at a given operating time or a percentage of 100 hour lumens at that time

**Lumens Per Watt (LPW):** See Efficacy

**Maximum Overall Length (MOL):** The maximum allowable distance from the top of the glass bulb to the end contact of the base

**Mean Lumens:** Light output at 40% of rated lamp life

**Normal (Low) Power-Factor (NPF) Ballast:** A ballast designed so that the input power factor is less than 90% when the ballast is operated at the rated supply voltage using a reference lamp

**Open Circuit Current (Line):** The RMS current measured at the input terminals of a ballast with lamp removed or in-operative

**Open Circuit Voltage, Ballast (OCV):** The voltage across the output terminals of a ballast when no load is connected (RMS, unless otherwise stated)

**Open Rated Lamp (Medium Base):** Designed for open luminaires; has a narrower neck than standard medium base lamps in order to fit into an exclusionary E26 medium socket

**Open Rated Lamp (Mogul Base):** Designed with an extended contact pin on the bottom of the base; should be used with an open fixture mogul sockets (EX39) which prevents electrical contact if a non-O-rated lamp is used

**Operating Current (Line):** The RMS current measured at the input terminals of a ballast which is operating a reference lamp

**Operating Voltage:** See Lamp Voltage

**Peak Lead Ballast:** A CWA ballast that produces a highly peaked open circuit voltage wave shape and a peaked current wave shape

**Photopic Light:** Describes lumen values measured using the high luminance eye sensitivity function centered at 555 nm (yellow-green)

**Position Oriented Mogul Base (POMB):** Used with horizontal operating lamps; has an alignment pin in the base for proper lamp orientation when installed into a EP39 socket

**Power Factor (Ballast):** The ratio of the ballast input power (watts) divided by the product of the rms ballast supply voltage and ballast supply current

**Pulse Start CWA Ballast:** A CWA ballast using an ignitor to start the lamp

**Pulse Start Lamp:** Specially designed metal halide lamp that requires a high voltage pulse for starting; has improved lumen maintenance and not starter electrode (probe)

**Rated Life:** The number of operating hours at which 50% of the lamps will still be operating

**Rated Supply Voltage:** The input voltage for which a ballast is designed to operate and to which performance characteristics are referred

**Reactor Ballast:** A lag ballast with a single input voltage tap

**Regulated Lag Ballast:** A lag ballast with a third coil for improved lamp power regulation

**Restrike:** To re-ignite the arc of a HID lamp

**Scotopic Light:** Describes lumen values measured using the low luminance eye sensitivity function centered at 507 nm (blue-green)

**Short-Circuit Current (Ballast):** The current at the output terminals of a ballast when the output is shorted (rms, unless otherwise stated)

**Shroud:** A quartz cylinder surrounding the arc tube of a metal halide lamp; designed to reduce the damage to the outer bulb if an arc tube rupture occurs; usually required to pass the ANSI containment test of the O-rating

**Spectral Power Distribution:** The distribution of radiant power (watts) of a lamp as a function of wavelength (nm)

**Starter:** See Ignitor

# Venture's Technical Center - HID Glossary

**Starting Current (Line):** The RMS current measured through the input terminals of the ballast five to 15 seconds after the lamp has started

**Starting Pulse:** A high-voltage, low-energy pulse superimposed on the open circuit voltage of some HID ballasts to aid in starting a lamp

**Sustaining Voltage:** The instantaneous voltage available to the lamp from the ballast at the time the lamp current passes through zero

**System Power:** The power measured at the input terminals of a ballast while is operating a reference lamp

**Warm-Up Time:** The amount of time from ignition of the lamp to 90% of full light output

**Watts:** A measure of energy (in joules) being used or emitted each second

**UL "Temp code":** An Underwriters Laboratories (UL) alphabetic temperature code for ballasts which designates a range of temperature rise of wire over ambient temperature. The code is found on the label directly following the number 1029X, where X is the appropriate alphabetic character