

ANSI (American National Standards Institute)

Group that generates product performance standards for many U.S. industries.

ANSI Watts

Measurement of electrical power used by the ballast and lamps when tested per ANSI standards.

Arc (Arc Tube)

Intense luminous discharge formed by the passage of electric current across a space between two electrodes.

Auto-Restrike

Circuitry used to restart the lamps without resetting the power to the ballast.

Ballast Efficacy Factor (BEF)

Measure used to compare various lighting systems based upon light output and input power. $BEF = \text{Ballast Factor} \times 100 / \text{Input Watts}$

Ballast Factor (BF)

Measure of light output from lamp operated by commercial ballast, as compared to laboratory standard reference ballast specified by ANSI

Ballast Losses

Power that is supplied to the ballast but is not converted into light energy.

Capacitor

Device in ballast that stores electrical energy.

Centigrade (C)

Celsius temperature scale where $0^{\circ}\text{C} = 32^{\circ}\text{F}$ and $100^{\circ}\text{C} = 212^{\circ}\text{F}$.

Coil

Windings of copper or aluminum wire around the core in electromagnetic ballast that transforms the voltage from input to output.

Color Rendering Index (CRI)

An international system used to rate a lamp's ability to render object color. The higher the CR, the better colors appear.

Constant Wattage Autotransformer (CWA)

An HID ballast in which the primary and secondary coils are electrically connected.

Core

Steel laminations of electromagnetic ballast that transforms electrical power from input to output.

Core and Coil Ballast

Another term for electromagnetic ballast.

Correlated Color Temperature

A specification of the color appearance of a lamp relating its color to that of a reference source heated to a particular temperature, measured in degrees Kelvin (K).

Crest factor (Lamp Crest Factor)

A measurement of current supplied by a ballast to start and operate the lamp.

Design Lumens

The amount of light that the lamp produces after it has operated for approximately 40 percent of its rated life.

Efficacy

Lumen output per unit of power supplied to the lamp (lumens per watt).

Electrical Testing Laboratory (ETL)

Independent electrical testing laboratory, which performs ballast testing.

Electrode

Metal filament that emits electrons in a fluorescent lamp.

Electromagnetic Ballast

A low frequency (50 or 60 Hz) ballast that uses a "Core and Coil" assembly to transform electrical energy (voltage and current) to start and operate fluorescent and high-intensity discharge (HID) lamps.

Electronic Ballast

A ballast that, with the aid of electronic components converts 50 - 60 Hz. input voltage and current to high frequency (> 20,000 Hz.) to operate fluorescent and high-intensity discharge (HID) lamps.

EMI (Electromagnetic Interference)

Any type of Electrical interference

Emitter

The electrode in a transistor where electrons originate

Energy

A measure of work done by an electrical system over a given period of time. Expressed as Kilowatt-hours (kWh)

5-Tap™ (Five-Tap)

Feature within a ballast which gives you a choice of 5 different input voltages.

Filament

Coated coil of special wire that emits electrons or light when heated.

Filament Voltage

Voltage applied to heat the lamp filament coil. Also called electrode or filament heating.

Fluorescence

Emission of visible light by the absorption of energy from another source.

Fluorescent Lamp

Gas filled lamp in which light is produced by the interaction of an arc with phosphors lining the lamp's glass tube.

Footcandles (fc)

Measure of light level on a surface that is being illuminated.

Frequency

The number of times per second that an alternating current system reverses from positive to negative and back to positive, expressed in cycles per second or hertz, Hz.

Harmonic Distortion

A measurement of the magnitude of voltage and current harmonics as compared with the amplitude of the fundamental frequency current.

Harmonics

Refers to components of the overall frequency, an integral multiple of the fundamental sine wave frequency.

Hertz (Hz)

Current or voltage operating frequency equal to one cycle per second.

High Flux

LEDs that are approximately 1.0 watts or more and provide a significantly high light intensity. Operate at 350mA.

High frequency ballast

An electronic ballast that operates the lamps above 20 kHz - 20,000 cycles per second.

High Intensity Discharge (HID) Lamp

A lamp containing a filled arc tube in which the active element becomes vaporized (a gaseous state) and is discharged into the arc stream to product light.

High power factor ballast (HPF)

Ballast with a power factor of 0.90 or greater.

High Pressure Sodium (HPS) Lamp

High Intensity Discharge light source which produce light by an electrical discharge sodium vapor operating at relatively high pressures and temperatures.

Hot Restart Time

Time it takes for a High Intensity Discharge (HID) lamp to reach 90% of light after going fro on to off to on.

Ignitor

A device that generates a voltage pulse to start certain discharge lamps without having to pre-heat the electrodes.

Incandescence

Emission of visible light by a heated material

Incandescent Lamp

Lamp in which light is produced by a filament heated by an electric current.

Initial Lumens

The measure of the amount of light a lamp produces after it has been operating 100 hours.

Input Voltage

Voltage, from the power line, which the ballast uses to power fluorescent lamps. The measure of the amount of light a lamp produces after it has been operating 100 hours.

Instant Start

An electromagnetic or electronic lighting circuit without lamp filament heating that produces instant light.

Kilowatt Hour (kwh)

The standard measure of electrical energy and the typical billing unit used by electrical utilities for electricity.

Lamp Current

Ration of peak lamp current to RMS or average lamp operating current.

Lamp efficacy

Lamp efficacy is lamp light output divided by lamp power (lumens/watt)

Lamp Watts

Power used to operate a lamp

Life (Average Rated) or Lamp Life

The median time it takes for a lamp to burn out.

Light

Radiant energy which can be sensed or seen by the human eye. Visible light is measured in lumens.

Light Emitting Diodes (LED)

A semiconductor device that illuminates by the movement of electrons in the material.

Low Flux

LEDs that are typically .1 to .4 watts each, and are arranged in clusters or arrays to create a collective light source. These systems operate a 12vdc or 24 vdc.

Low Power Factor Ballast (LPF)

Ballast with a power factor of 0.79 or less - also called normal power factor (NPF) ballast. LPF ballast requires about twice the line current of HPF ballast so fewer LPF ballasts can be installed on a circuit, which increases installation cost.

Lumen Depreciation

The decrease in lumen output of a light source over time. Also called Lumen Maintenance.

Lumen Maintenance

The rate at which light output declines over time.

Lumens

Measurement of light emitted by a lighted lamp.

Lumens per watt

Units of light produced per unit of power.

Luminaire

A light fixture; the complete lighting unit, including lamp, reflector, ballast, socket, wiring, diffuser, and housing.

Luminous Efficacy

The light output of a light source divided by the total power input to that source. Expressed in lumens per watt.

Mean Lumens

Average light produced when lamp has been operating about 40 percent of rated life.

Mercury Lamp

A High Intensity Discharge (HID) light source in which the light is produced by radiation from mercury, plus halides of metals such as sodium, scandium, indium and dysprosium.

PCB (Polychlorinated Biphenyls)

Chemical pollutant used in oil-filled capacitors outlawed by the EPA in 1978.

Phosphor

Material lining the interior of a fluorescent lamp, which emits light.

Power

The rate at which energy is taken from an electrical system or dissipated by a load, expressed in watts (W); power that is generated by a utility is typically expressed in volt-amperes (V-A).

Power Factor (PF)

A measurement of how efficiently an electrical device uses power supplied by the power line. $PF = \text{Watts}/(\text{Volts} \times \text{Current})$.

Power Factor Corrected Ballast (PFC)

Ballast with a power factor from 0.80 to 0.89.

Preheat Ballast

Electromagnetic ballast that requires separate starter in order to ignite the lamp.

Preheat Lamp

A fluorescent lamp in which the filaments must be heated before the lamp ignites.

Programmed Start Ballast

Electronic ballast that provides precise heating of the lamp filaments and tightly controls the preheat duration before applying starting voltage to ignite the lamp.

Rapid Start Ballast

Electromagnetic or electronic ballast that provides both filament heating and starting voltage to the lamp at the same time in order to ignite the lamp.

Rapid Start Lamp

Fluorescent lamp that requires filament heating before igniting and producing light.

Reference Ballast (standard reactor)

Laboratory device used to provide ANSI specified operating parameters for fluorescent and HID lamps.

RFI - (Radio Frequency Interference)

Form of electromagnetic interference with radio communications as defined by the FCC.

Slimline Lamp

Fluorescent lamp, which has single pin contacts, that requires no filament heating to ignite.

Starting Temperature

The minimum ambient temperature at which the lamp will start.

Striation

Spiraling or swirling of fluorescent lamps at initial turn on or energy-saving lamps at low temperature or low current.

System efficacy

System efficacy (also lumens/watt) is lamp light output divided by the sum of the lamp power plus

T12, T10, T8, T5

Industry standard naming for a fluorescent lamp. (T= Tubular and the numbers that follow represent the diameter in 1/8 inch increments.)

Thermal Protector

A self resetting switch that disconnects power to the ballast if internal temperatures rise above the trip point- typically 105C. Thermal protectors are used in some ballasts to limit maximum case temperature and meet UL Class P safety standards.

Third Harmonic

Third multiple of the fundamental frequency that will add in the neutral wire of a three phase, 4 wire, Wye system and will could cause over-heating of the neutral wire should it exceed 33 1/3 percent.

Three Phase Current

Current delivered through three wires with each wire serving as the return for the other two.

Total Harmonic Distortion

The combined effect of Harmonic Distortion on the AC waveform produced by the ballast or other device.

Transients

Transients are sudden but significant deviations from normal voltage or current levels.

Trigger Start Ballast

Electromagnetic ballast that starts and operates preheat lamps similar to a Rapid Start lamp. No separate starter is needed to ignite the lamp.

UL (Underwriters' Laboratories, Inc.)

Laboratory that sets safety standards for building materials, electrical appliances and other products.

Voltage (V)

A measure of electrical potential, express in volts (V).

Voltage Sag

Drop in voltage levels of electrical distribution system, which interferes with the operation of electrical and electronic equipment. Commonly called "Brownout," Results when demand for electricity exceeds capacity of the distribution system.

Watts (W)

Unit for measuring electrical power.