



## Kinglumi Co., Ltd.

Bldg 3, Nangang 3rd Industrial Zone, Tangtou,  
Shiyan, Baoan, Shenzhen, CHINA 518108

Tel: + 86 755 29516789 Fax: +86 755 29516769 Email: Sales@Kinglumi.com

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### GLOSSARY OF LIGHTING TERMS

**2C/2N(2circuit 2Neutral) Track:** A 4-wire track system, with 2 Live and 2 Neutral connection. There has 120VAC and 277VAC option.

**AC(Alternating Current):** The flow electricity(electric current) in a circuit that alternates direction every second with a standard current frequency of 50Hz/60Hz.

**Accent Lighting:** Directional lighting to emphasize a particular object or surface feature, or to draw attention to a part of the field of view.

**Architectural lighting:** Term given to lighting concepts using both daylight and artificial light, whereby the technical solution is an integral constituent part of the architecture.

**Adapter:** A device for connecting a luminaire, especially a spotlight or floodlight, both mechanically and electrically to a track.

**Airtight:** Not allowing air to escape or pass through the holes. Normally, a downlight request a hole on ceiling for mounted, with airtight downlight, it can stop the air circulation.

**Ambient Temperature (Ta):** The air temperature surrounding the device.

**American National Standards Institute (ANSI):** The organization that coordinates voluntary guidelines and standards for the electrical and other industries.

**Annulight:** A trade mark of Kinglumi Co., Ltd.

**ANSI Binning:** The system defined by the American National Standards Institute for the binning specifications for light emitting diodes.

**Ballast:** A device used with an electric-discharge lamp to provide the necessary circuit conditions (voltage, current, and wave form) for starting and operating.

**Barndoor:** A set of adjustable flaps—usually two, four, or eight—that may be attached to the front of a luminaire (usually a Fresnel spotlight) speed ring or to an accessory holder in order to partially control the shape and spread of the light beam.

**Beam Angle (Spread):** The central part of the beam of light from a reflector lamp (i.e. BR, MR and PAR types) where the intensity is 50% of the maximum candle power.

**BBBL:** The Chromaticity Coordinate of LED is below the Black Body Curve.

**Black Body / Black Body Radiator:** An object that absorbs all electromagnetic radiation falling on it. Because it reflects no light, a black body appears black. As a black body is heated to incandescence, it radiates light in a sequence of colors, from red to orange to yellow to white to blue, depending on its temperature. This color sequence describes a curve within a color space, known as the black-body curve.

**Black Body Curve:** A curve within a color space describing the sequence of colors emitted by a black-body radiator at different temperatures.

**Brightness:** The attribute of a visual sensation according to which an area appears to emit more light or less light.

**CAMETA:** A trade mark of TIR lens developed by Kinglumi Co., Ltd. in 2010, with Chinese patent.

**Candela (cd):** The measuring unit of luminous intensity



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of a light source in a given direction. A light source may have different intensities depending upon the given direction which the measurement is taken. The old measurement equated to the amount of light produced by a standard candle.

**Candlepower (cp):** Luminous intensity expressed in candelas. Typically used in measuring the luminous intensity distribution of a reflector lamp or lighting fixture.

**Case Temperature:** The temperature measured at the LED package or case.

**Center Beam Candle Power (CBCP):** The intensity of light produced at the center of a reflector's beam, expressed in candelas.

**CCG:** Abbreviation for Conventional Control Gear

**Ceiling Washlight:** Luminaire type which is mounted individually or in rows above eye-level in or on walls. These luminaires illuminate the ceiling area uniformly and without causing glare; they are predominantly designed for tungsten halogen lamps, fluorescent lamps or high-pressure discharge lamps.

**Chromaticity:** An objective specification of the quality of colour regardless of its luminance.

**C.I.E. Standard Colourmetric System:** System for the numerical classification of colours of light and body colours. The chromaticity diagram is a two-dimensional diagram in which the colour loci of all colours and colour mixes are represented in grades of saturation ranging from the pure colour through to white, which can be numerically expressed by their xy coordinates. Colour mixes are located on a straight line drawn between the colours to be mixed; the colour of light of thermal radiators lies on the defined curvature of the Planckian curve.

**Coefficient of utilization(CU):** The ratio of luminous flux (lumens) calculated as received on the work plane to the

total luminous flux (lumens) emitted by the lamps alone. It is equal to the product of room utilization factor and luminaire efficiency.

**Color Rendering Index (CRI):** An index from 0-100 measuring a light source's ability to render color accurately. Sodium lamps can have a CRI as low as 22, while tungsten Halogen lamps can have a CRI as high as 100. Any lamps rated above 80 CRI tend to be of good color rendering.

**Color Temperature:** The measure of the color appearance of a light source which describes the apparent warmth of coolness of that light source.

**Compact Fluorescent Lamp (CFL):** The standard term given to small diameter Fluorescent lamps, some of which have built-in ballasts and medium screw bases for replacement of Incandescent lamps.

**Cones:** Retinal receptors that dominate the retinal response when the luminance level is high and provide the basis for the perception of color.

**Constantly Current:** A circuit in which the current remains constant but the voltage may vary.

**Control Gear:** These devices are necessary for the operation of discharge lamps. They primarily refer to current-limiting control gear (chokes) and starters, i.e. ignitors required to operate discharge lamps but also to transformers required to operate low-voltage halogen lamps. Inductive control gear devices are available either in conventional (CCG) or low-loss versions (LCG). They sometimes require an additional ignitor or starter. Electronic control gear (ECG) work without any additional ignitor and prevent annoying transformer hum or stroboscopic effects.

**Current:** A measure of the rate of flow of electricity, expressed in amperes.

**Cut-off Angle:** Angle above which no direct reflection of



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the lamp is visible within the reflector. With Darklight reflectors the luminaire cut-off angle is identical to the lamp cut-off angle.

**DALI(Digital Addressable Lighting Interface):** A digital communications protocol for controlling and dimming lighting fixtures, originally developed in Europe.

**Die-casting:** A metal casting process that is characterized by forcing molten metal under high pressure into a mold cavity. The mold cavity is created using two hardened tool steel dies which have been machined into shape and work similarly to an injection mold during the process.

**Diffuser:** A device to redirect or scatter light from a source, primarily by the process of diffuse transmission.

**DIM:** To reduce the illuminance produced by a luminaire. Though mechanical means may be utilized (see iris), the usual reference is to the use of an electrical dimmer.

**Dimmable:** A lamp that has varying lumen output controlled by dimming device.

**Dimmer:** An electronic device used to vary the lumen output of a lamp.

**DIM to Warm:** A products are suited for hospitality and entertainment venues such as hotels, restaurants, cafeteria and theatres, where there is a desire to mimic the behavior of incandescent lamps. When delivering maximum light output, the color is white, but when lighting is dimmed, the CCT drops to simulate dimmed incandescent or candlelight. Judges observed that the color quality in the submitted product was stellar, even at the lowest end of the dimming range.

**Direct Current (DC):** A type of electrical current and distribution by which electricity flows in one direction through the conductor. Battery operated systems are typical DC applications. (See Alternating Current)

**Direct Lighting:** Lighting involving luminaires that

distribute 90% to 100% of the emitted light in the general direction of the surface to be illuminated. The term usually refers to light emitted in a downward direction.

**Downlight:** A small direct-lighting unit that directs the light downward and can be recessed, surface mounted, or suspended.

**Double Washlights:** A luminaire used in supermarket, library to provide uniform illumination of the vertical shelf.

**Efficacy:** The measured effectiveness at which lamps convert power (measured in watts) into light (measured in lumens). Also see Lumens Per Watt.

**Emergency Lighting:** Lighting designed to supply illumination essential to the safety of life and property in the event of failure of the normal supply.

**Energy Policy Act (EPACT):** Energy legislation passed in 1992 by the U.S. Congress. The law involves a variety of different industries including lighting. The lighting section of the legislation covers lamp labeling and minimum energy efficiency standards (lumens/watt) for many commonly used lamps including incandescent and Fluorescent sources.

**ELV-type Dimmer:** An electronic low voltage dimmer, used to dim LED lighting fixtures with electronic transformers.

**Extrusion:** a process used to create objects of a fixed cross-sectional profile. A material is pushed through a die of the desired cross-section.

**Eulumdat:** European Lumen Data format that describes the light intensity distribution of luminaires.

**EVG:** Abbreviation for Electronic Control Gear.

**Faceted Reflector:** Reflector with flat facets which produces a more cohesive beam than conventional,



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mirror-finish reflectors.

**Field Angle:** The angle between the two directions for which the intensity is 10% of the maximum intensity as measured in a plane through the nominal beam centerline. For beams that do not possess rotational symmetry, the beam angle is generally given for two planes at 90 degrees, typically the maximum and minimum angles. Note that in certain fields of application the angle between the 10%-of-maximum directions was formerly called beam angle.

**Filter:** Optical elements with selective transmission. Filters only transmit part of the incident radiation, to produce either coloured light or by filtering out invisible radiation such as ultraviolet or infrared. Filter effects can be achieved by absorption (absorption filter) or reflection (reflection filter). Interference filters are effective reflection filters that work using special vaporised coatings; they are also known as dichroic filters.

**Flicker Index:** A measure of the cyclic variation in output of a light source, taking into account the waveform of the light output. It is the ratio of the area under the light output curve that is above the average light output level to the total area under the light output curve for a single cycle.

**Flicker Percentage (Flicker %):** A relative measure of the cyclic variation in output of a light source (percent modulation).

**Fluorescent Lamp:** A low-pressure mercury discharge lamp in which an electric discharge of ultraviolet energy excites a coating of phosphor on the lamp glass and transforms some of that energy to visible light. Fluorescent lamps are manufactured in many different forms including linear four foot T8 lamps, U-shaped and Coiled Compact Fluorescent lamps with integrated ballasts. Fluorescent lamps typically require a matching ballast to operate the lamp properly.

**Forward voltage:** LEDs are current driven devices. If an

external current is passed through the device, a forward voltage will be developed across the diode.

**Frequency:** The number of times per second that an alternating current system reverses from positive to negative and back to positive, expressed in hertz (Hz).

**Fresnel lens:** Stepped lens where the lens effect is achieved by the concentric arrangement of lens segments. Fresnel lenses are used for stage spotlights and spotlights with adjustable beam angle.

**Gateway:** A data exchange protocol that enables communication of different protocols in a network.

**General Lighting:** Lighting designed to provide a substantially uniform level of illuminance throughout an area, exclusive of any provision for special local requirements.

**Glare:** Collective term for the reduction of visual performance or the impairment of perception due to high luminances or luminance contrasts in the visual surroundings. A distinction is made between discomfort glare and disability glare: the former concerns an objective reduction in vision and the latter a subjective impairment due to any disparity between the luminance and information content of the observed area. The glare can be caused by the lamp itself (direct glare) or by reflection of the lamp (reflected glare).

**GLOBAL Track Adapter:** A 4wire 3Circuit track adapter, compatible with GLOBAL pro three-circuit system (GLOBAL is a registered trademark of Nordic Aluminium).

**Goniophotometer:** A photometer for measuring the directional light distribution characteristics of sources, luminaires, media, and surfaces.

**Halogen Lamp:** A higher pressure, high temperature incandescent lamp containing Halogen gas that recycles



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tungsten back onto the filament surface. The Halogen cycle allows for higher efficacy, higher color temperature, and longer life cycles than incandescent lamps.

**Heat Sink:** A part of the thermal system that conducts or disperses heat away from sensitive components, such as LEDs and electronics.

**Hertz (Hz):** A unit of frequency equal to one cycle per second (see Frequency). The U.S. standard is 60 Hz.

**High Power LED:** A high power LED, sometimes referred to as a power LED, is one that is driven at a current of 350mA or higher.

**High Intensity Discharge Lamp (HID):** A high pressure lamp in which high intensity light is produced by an electrical arc source. General terminology for Mercury lamps, Metal Halide lamps, High Pressure Sodium lamps, High Pressure Xenon lamps, or any other high intensity arc discharge source.

**Honeycomb:** Anti-dazzle attachment with honeycomb structure used to restrict the light beam and reduce glare.

**H-Type:** A track adapter, compatible with Halo 3wire 1circuit track system(Halo is a registered trademark of Cooper Lighting).

**IC Downlight:** A downlight which designed to allow insulation thermal materials to direction covered it.

**Incandescent lamp:** Thermal radiator where light is created by heating a Tungsten filament. The incandescent filament is enclosed in a glass bulb filled with an inert gas such as nitrogen which prevents it from oxidising and delays the vaporisation of the filament material. Incandescent lamps are available in numerous forms, the main groups being general service lamps with pear-shaped, clear or frosted bulbs, reflector lamps with a variety of internal reflective coatings and PAR lamps made of moulded glass with integral parabolic reflector.

**IES:** International data format for describing the light intensity distribution of luminaires.

**Illuminance:**  $E=d\Phi/dA$ , The areal density of the luminous flux incident at a point on a surface.

**Illumination:** An alternative, but deprecated, term for illuminance. It is sometimes used because illuminance is subject to confusion with luminance and illuminants, especially when not clearly pronounced.

**Indirect Lighting:** Lighting involving luminaires that distribute 90% to 100% of the emitted light upward.

**Initial Lumens:** The luminous output of a new light source. Quantity of light output measured after 100 hours of operation using controlled system characteristics.

**Inrush Current:** The current generated during the initial start up of a lamp system. Inrush current can be several times higher than the operating current of a lamp.

**Integrating Sphere:** A hollow sphere whose internal surface is a diffuse reflector and is as spectrally non-selective as possible.

**IP Rating (Protection class):** Indicates the measures taken to prevent contactable metal parts from conducting current in case of a fault occurring.

**Isolux (isofootcandle) line:** A line plotted on any appropriate set of coordinates to show all the points on a surface where the illuminance is the same. A series of such lines for various illuminance values is called an isolux (isofootcandle) diagram.

**J-Type:** A track adapter, compatible with Juno 1 circuit track system(Juno is a registered trademark of Juno Lighting).

**Junction Box(JB, J-box):** A box containing a junction of electric wires or cables.



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**Junction Temperature:** Junction temperature, noted as  $T_j$ , is the temperature of the LED's active region.

**Kelvin:** A unit of color temperature measurement. (See Correlated Color Temperature).

**Kilowatt (kW):** A measure of electrical power equal to 1000 watts.

**Leadership in Energy & Environmental Design (LEED):** The U.S. Green Building Council's (USGBC) green building certification program that requires buildings to satisfy certain prerequisites to achieve different levels of certification.

**Leading Edge Dimmer:** A type of dimmer that regulates power to lamps by delaying the leading edge of each half-cycle of AC power. Compatible with many LED fixtures.

**LED Array or Module:** An assembly of light emitting diode (LED) packages (components), or dies on a printed circuit board or substrate, possibly with optical elements and additional thermal, mechanical, and electrical interfaces that are intended to connect to the load side of an LED driver. Power source and ANSI standard base are not incorporated into the device. The device cannot be connected directly to the branch circuit.

**LED Chip (Chip):** The light producing semiconductor device that may or may not be incorporated into an LED.

**LED Driver:** A device composed of a power source and light emitting diode (LED) control circuitry designed to operate an LED package (component), an LED array (module), or an LED lamp.

**LED Light Engine:** An integrated assembly comprised of LEDs or LED arrays, LED driver, and other optical, thermal, mechanical, and electrical components.

**LED Luminaire:** A complete lighting unit consisting of light emitting diode (LED)-based light emitting elements

and a matched driver together with parts to distribute light, to position and protect the light emitting elements, and to connect the unit to a branch circuit. The LED-based light emitting elements may take the form of LED packages (components), LED arrays (modules), an LED light engine, or LED lamps. The LED luminaire is intended to connect directly to a branch circuit.

**Lens:** A transmitting element used to change the direction and control the distribution of light rays.

**Light distribution curve** A three dimensional shape describing the light distribution from a light source or a luminaire.

**Light efficiency of a luminaire** A value given in  $\text{lm/W}$ , describing the ratio of the luminous flux emitted by a luminaire and the energy consumed by it.

**Light-Emitting Diode (LED):** A Light Emitting Diode (LED) is a solid-state semiconductor device that converts electrical energy directly into light. On its most basic level, the semiconductor is comprised of two regions. The p-region contains positive electrical charges while the n-region contains negative electrical charges. When voltage is applied and current begins to flow, the electrons move across the n-region into the p-region. The process of an electron moving through the p-n junction releases energy. The dispersion of this energy produces photons with visible wavelengths.

**Light Intensity(cd):** The amount of light falling on a given point.

**Lifetime:** The estimated period in working life span.

**LM-79:** Photometric testing report for LEDs that contains information such as lumens, color temperature, power, current, etc.

**LM-80:** Testing report for LEDs that contains information on the lifespan of the LED.



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**L-Type:** A track adapter, compatible with Lightolier 2wire 1circuit track system(Lightolier is a registered trademark of Philips Lighting).

**Lumens:** The international unit of measurement for light. A measurement of total quantity of light output from an electric lamp in all directions for a given unit of time. (See Initial Lumens and Mean Lumens)

**Lumens Per Watt (LPW, lm/W):** Efficacy; Lumen output divided by lamp watts consumed.

**Lumen Depreciation:** The decrease in lumen output of a light source over time, until failure.

**Luminaire (Light fixture):** A complete lighting unit consisting of a lamp(s) and ballast(s) (when applicable), together with the parts designed to distribute the light, to position and protect the lamps, and to connect the lamps to the power supply.

**Luminaire Efficiency:** The ratio of luminous flux (lumens) emitted by a luminaire to that emitted by the lamp or lamps used therein.

**Luminaire Power:** The total power consumption of a luminaire.

**Luminaire Spacing Criterion(SC):** A classification parameter for indoor luminaires relating to the distribution of the direct-illuminance component produced on the work plane. The spacing criterion of a luminaire is an estimated maximum ratio of the luminaire spacing to the luminaire mounting height above the work plane for a regular array of that luminaire such that the work plane illuminance will be acceptably uniform.

**Luminance:** Photometric brightness, luminance is a measure of the flux emitted from, or reflected by, a relatively flat and uniform surface. Luminance may be thought of as luminous intensity per unit area. Candelas per square meter ( $\text{cd}/\text{m}^2$ ).

**Luminous flux – LED:** The total combined luminous flux of all LED sources installed in a luminaire, given as the diode's nominal temperature.

**Luminous flux – luminaire:** The total luminous flux of the luminaire, taking into account all losses resulting from the optical systems used, the temperature

**Luminous intensity of a LED:** The power of the LED-modules installed in a luminaire.

**Lux (lx):** An international metric unit of luminance. One lux is equal to 1 lumen per square meter (see footcandle).  
 $1 \text{ lx} = 1 \text{ lumen per square meter (lm}/\text{m}^2)$ .

**MacAdam Ellipse:** A MacAdam ellipse is the region on a chromaticity diagram which contains all colors which are indistinguishable, to the average human eye, from the color at the center of the ellipse.

**MCPCB:** A widely accepted Printed Circuit Board (PCB) material with a Metal Core (MC) for better thermal performance.

**Metal Halide Lamp:** A member of the high intensity discharge light source family. The light from this source is produced by the radiation from mercury, together with halides of metals such as sodium, scandium, indium and dysprosium. Metal Halide light sources typically require a matching ballast to operate the lamp properly. Metal Halide lamps are available in single-ended and double-ended varieties. Lamp design varies from tubular to elliptical shapes.

**Modular design:** A design approach that subdivides a system into smaller parts called modules, which can be independently created and then used in different luminaires. A modular system can be characterized by functional partitioning into discrete scalable, reusable modules.

**Museum lighting:** A particular branch of exhibition lighting; it places special demands on the design of the



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lighting and on the light distribution on the exhibits and architecture and also requires light protection for sensitive exhibits.

**Narrow spot:** Common term for very narrow-beam reflectors or reflector lamps.

**Office lighting:** This is specifically oriented about the requirements for VDU workplaces; see VDU lighting. A distinction is drawn between ambient lighting, workplace-oriented ambient lighting and individual workplace lighting.

**Operating Current:** Steady state current consumed by a lamp at rated watts.

**Phosphor:** An inorganic chemical compound processed into a powder and deposited on the inner glass surface of certain discharge lamps. Phosphors absorb short wavelength ultraviolet radiation, transform it and emit it as visible light.

**Photobiological Hazard:** The possible risk of biological injury due to optical radiation.

**Photobiology:** A branch of biology that deals with the effects of optical radiation on living systems.

**Photometer:** An instrument for measuring photometric quantities such as luminance, luminous intensity, luminous flux, or illuminance.

**Planckian Black Body Locus:** The line on the CIE Chromaticity Diagram that describes the color temperature of an object when heated

**Point Illuminance:** In contrast to the average illuminance, the point illuminance expresses the illuminance at a defined point in space.

**Point Light Source:** Term describing compact, virtually point-form sources. The light from point light sources can

be optimally directed and focused. Conversely, linear or area light sources produce diffuse light, which becomes more diffuse the more the light disperses.

**Power Factor (PF):** A measure of the effectiveness of which an electrical device converts amperes to watts. Power factors can range from 0 to 1.0. A high power factor means that an electrical system is utilizing power efficiently. Devices with power factors of greater than 0.90 are considered "high power factor." from approximately 1,000K to more than 10,000K.

**Projector:** A lighting unit that, by means of mirrors and lenses, concentrates the light into a limited solid angle so as to obtain a high value of luminous intensity.

**Ra:** An average value of color rendering index R1 to R8, which measures a light source's ability to render color accurately.

**Recessed floor luminaire:** A luminaire which is flush-mounted in the floor or ground and has a high protection mode. These luminaires are used to mark out routes and pathways and also to dramatically illuminate objects and architectural details.

**Reflection:** A general term for the process by which the incident flux leaves a (stationary) surface or medium from the incident side, without change in frequency.

**Reflectivity:** Reflectance of a layer of a material of such a thickness that there is no change in reflectance with increase in thickness.

**Reflector:** Light-directing system based on reflecting surfaces. The main characteristics of a reflector are its reflectance and spread. For concave and convex mirror reflectors, a further characteristic is the curvature of its cross section, i.e. the reflector contour. Parabolic reflectors align the light from a light source located at the focal point into a parallel beam, spherical reflectors reflect it back to the focal point and elliptical reflectors focus it to a second focal point.





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**SDCM:** See **Standard deviation of color matching (SDCM)**

**Sensor:** Device for measuring environmental conditions and events within the surroundings. The sensor measures the value and sends a signal when the limit has been exceeded in order to trigger an action such as adjusting the lighting.

**Shielding Angle:** With downlights, this is the angle subtended between the horizontal plane and a straight line extended from the edge of the luminaire to the edge of lamp. It is a dimension for the visual comfort of a luminaire in addition to the luminaire cut-off angle.

**Shop window lighting:** In essence, shop window lighting design is closely linked to showroom lighting; it primarily involves the use of accent lighting, often with theatrical scenic effects using coloured light, lighting projections and dynamic .

**SMDs:** Surface-mount LEDs.

**Snoot/Funnel:** In television, film and theater lighting: A metal tube that can be mounted on the front of a spotlight to control stray light.

**Soft Light:** Diffuse illumination that produces soft-edged, poorly defined shadows on the background when an object is placed in its path; A luminaire designed to produce such illumination.

**Solid Angle:** A measure of that portion of space about a point bounded by a conic surface whose vertex is at the point. It is defined as the ratio of intercepted surface area of a sphere centered on that point to the square of the sphere's radius. It is expressed in steradians.

**Solid-State Lighting:** A description of the devices that do not contain moving parts or parts that can break, rupture, shatter, leak or contaminate the environment.

**Spacing-to-mounting-height ratio(S/MH):** The ratio of the actual distance between luminaire centers to the mounting height [see mounting height, MH (interior)].

**Spill light:** Unwanted light emitted outside the main beam. Spill light can cause glare, and outdoors, for example, it is often a source of light pollution.

**Spotlight:** Luminaire in which the predominant direction of light distribution can be aimed at any desired point by rotating and tilting; used mainly with track.

**Standard deviation of color matching (SDCM):** Describes the difference between two colors. A difference of one to three SDCM "steps" is virtually imperceptible, a difference of four SDCM steps is just noticeable, and a difference of more than four SDCM steps is readily visible.

**Stroboscope Effect:** This is a flickering effect which results in the apparent change in the speed of moving objects. This can even go so far as to make objects appear to be stationary or move in the opposite direction. It is caused by light pulsating at or close to mains frequency. Stroboscopic effects can occur when lighting is provided by discharge lamps. It can be remedied by phase-shifted operation (lead-lag circuit, connecting to a three-phase power network) or by high-frequency electronic control gear.

**Surface Mounted Luminaire:** A luminaire that is mounted directly on a wall or on the ceiling.

**Suspended (pendant) Luminaire:** A luminaire that is hung from a ceiling by supports.

**Task lighting:** In general, this refers to the lighting of workplaces; specifically, it refers to the additional lighting of workplaces which is designed to suit the actual visual task and is additional to the ambient lighting.

**Thermal Management:** Controlling the operating temperature of the product through design, examples



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include heat sinks and improved airflow.

factor and the luminous flux of the lamp.

**Thermal Resistance (K/W):** The property of a material's ability to conduct heat.

**Total Harmonic Distortion (THD):** A measure of the distortion of an electrical wave form. THD is expressed in percent and may refer to individual electrical loads (such as a ballast). The ANSI recommendation is for THD to be no greater than 24%.

**Trailing Edge Dimmer:** A type of dimmer that regulates power to lamps by delaying the end of each half-cycle of AC power. Compatible with many LED fixtures.

**Triac Dimmer:** TRIAC dimmers are designed for resistive loads such as incandescent or halogen lights and have a significant installed base in the worldwide.

**Tunable White Light:** White-light LED fixtures that combine channels of warm white and cool white LEDs to produce a range of color temperatures.

**UGR(Unified Glare Rating):** The unified glare rating is a formula for measuring glare levels, calculated for lightning systems at the design stage.

**Ultraviolet (UV):** The portion of the electromagnetic spectrum in which the longest wavelength is just below the visible spectrum, extending from approximately 4nm to approximately 400nm.

**Uplight:** Pendant luminaires, wall luminaires, floor luminaires or free-standing luminaires that emit their light upwards.

**Utilisation Factor:** This factor describes the influence of spatial geometry and the reflectance of its peripheral surfaces on the residual luminous flux arriving on the defined working plane.

**Utilisation Factor Method:** Method for calculating the average illuminance in a room using the utilisation

**Visual comfort:** Visual comfort expresses the lighting quality with regard to parameters such as illuminance, elimination of glare and colour rendition.

**Visual performance:** This term is used to describe the ability of the eye to perceive or the visual properties of the object to be viewed. The difficulty of a visual task increases as the colour contrast or luminance contrast decreases, and also as the size of detail decreases.

**Voltage:** The force or the pressure of electricity. For incandescent and Halogen lamps, voltage generally refers to the line voltage of which the lamp should be connected. For HID, Fluorescent, and Low-Voltage lamps, the voltage generally refers to the operating voltage which the lamp is connected to a power supply (ballast or transformer) after it has warmed up.

**Wallwasher:** Luminaire with special reflector system or reflector lens system for uniform lighting of walls; it is essential that the wallwashers are spaced equally and are parallel to the wall.

**Warm White(WW):** Colour of light

**Washlights:** Luminaire with a combination of darklight reflector and ellipsoid reflector which achieves a high level of visual comfort combined with even wall lighting; the prerequisite for this is the regular arrangement of wallwashers parallel to the wall.

**Watt:** Physical unit of power. It is the product of voltage and current.

**Wavelength:** Distance between two successive points of a periodic wave. The wavelengths of light are typically expressed in nanometers (nm), or billionths of a meter.

**Wide Flood:** Common term for very wide-beam reflectors or reflector lamps.



## **Kinglumi Co., Ltd.**

Bldg 3, Nangang 3rd Industrial Zone, Tangtou,  
Shiyan, Baoan, Shenzhen, CHINA 518108

Tel: + 86 755 29516789 Fax: +86 755 29516769 Email: Sales@Kinglumi.com

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**Working Temperature:** Temperature range in which the luminaire can be safely used.

**Workplace Lighting:** In contrast to ambient lighting, this lighting is designed for one specific workplace, e.g. using task lights.

**Work Plane:** The plane on which a visual task is usually done, and on which the illuminance is specified and measured. Unless otherwise indicated, this is assumed to be a horizontal plane 0.76 meters (30 inches) above the floor.