Candela
Represented by the symbol I (cd)
Unit of → luminous intensity, the basic unit of measure in lighting technology. 1 cd is defined as the luminous intensity emitted by a monochromatic light source with a radiant power of 1/683 W at 555 nm at a solid angle of 1 steradian

Capacitive circuits
Circuits where a discharge lamp run on an inductive → ballast (CB, LLB) is compensated using a series capacitor. The circuit is then over-compensated, which means that a second lamp can be operated in parallel with the first (→ lead-lag circuit)

CB
Abbreviation for conventional → ballast

Central field of vision
The central field of vision is effectively the same as the working plane, as it consists of the visual task and its direct ambient field. The central field of vision is enclosed by the surrounding field as an extended ambient field. The concepts of central field of vision and surrounding field are used mainly in connection with luminance distribution

Chromacity coordinates
→ Standard colorimetric system

Chromacity diagram
→ Standard colorimetric system

Chromatic aberration
→ Aberration

CIE
Abbreviation for Commission Internationale de l'Eclairage, international lighting commission

Colour adaptation
The ability of the eye to adjust to the → luminous colour of an environment. Allows relatively natural colour perception even amongst different luminous colours

Colour rendering
Quality of the reproduction of colours under a given light. The degree of colour distortion in comparison with a reference light source is classified by the colour rendering index Ra, or by the colour rendering category

Colour temperature
Describes the → luminous colour of a light source. In the case of thermal radiators the colour temperature is almost equivalent to the temperature of the filament. In the case of discharge lamps, a correlated colour temperature is given. This is the temperature at which a → black body emits light of a comparable colour

Compact fluorescent lamp
→ Fluorescent lamps with especially compact dimensions due to a combination of several short discharge tubes or one curved discharge tube. Compact fluorescent lamps are single-ended lamps; starters, and sometimes also → ballasts, can be integrated into the cap

Compensation
If → discharge lamps are run on inductive → ballasts (CB, LLB), the power factor is below unity. Due to the phase shift of the voltage with respect to the current a certain amount of blind (reactive, wattless) current is produced, which loads the power mains. In the case of large-scale installations power supply companies require the blind current to be compensated by means of power factor correction capacitors

Cone vision
→ Photopic vision

Cones
→ Eye

Constancy
The ability of human perception to distinguish the constant qualities of objects (size, form, reflectance/colour) from changes in the environment (changes in distance, position within the space, lighting). The phenomenon of constancy is one of the essential prerequisites that allow the creation of a clearly structured image of reality from the changing luminance patterns on the retina

Contrast
Difference in the → luminance or colour of two objects or one object and its surroundings. The lower the contrast level, the more difficult the → visual task

Contrast rendition
Criterion for limiting reflected glare. Contrast rendition is described by the contrast rendition factor (CRF), which is defined as the ratio of the luminance contrast of the visual task under given lighting conditions to the luminance contrast under reference lighting conditions

Control gear
Control gear is the equipment required in addition to the actual lamp for the operation of the light source. This comprises generally → ballasts that regulate the current flow, → ignitors and → starting devices for the operation of discharge lamps, and transformers for the operation of low-voltage lamps

Controlling brightness
→ Dimmer

Convergence
Alignment of the optical axes of the eyes to an object, effectively parallel in the case of objects viewed at a considerable distance, meeting at an angle in the case of objects viewed at close range

Coolbeam reflector
→ Dichroic reflector which reflects mainly visible light but transmits (glass reflectors) or absorbs (metal reflectors) infrared radiation. Using coolbeam reflectors reduces the thermal load on illuminated objects. Often referred to as multi-mirror reflectors

Cove
Architectural element on the ceiling or wall that can accommodate luminaires (usually → fluorescent lamps or → high-voltage fluorescent tubes) for indirect lighting

Cove reflector
Reflector for linear light sources, by which the cross section at right angles to the longitudinal axis determines the lighting effect

Cut-off angle (lamp)
Angle above which no direct → reflection from the light source is visible in the → reflector. In the case of → darklight reflectors the cut-off angle of the lamp is identical to the cut-off angle of the luminaire. In other forms of reflector it may be less, so that reflected glare occurs in the reflector above the cut-off angle

Cut-off angle (luminaire)
The angle taken from the horizontal to the line from the inner edge of the luminaire to the edge of the light source. Together with the → cut-off angle (lamp), this angle is used to identify the glare limitation of a luminaire

Darklight reflector
→ Reflector

Daylight
Daylight consists of both direct sunlight and the diffuse light of an overcast or clear sky. Daylight illuminances are significantly higher than the illuminances produced by artificial lighting. The → luminous colour is always in the → daylight white range

Daylight factor
Ratio of the → daylight → illuminance on the → working plane in a space to the outdoor illuminance

Daylight simulator
Technical equipment for simulating sunlight and → daylight. Daylight is either simulated by a semi-spherical shaped arrangement of numerous luminaires or by the multireflection of a laylight ceiling in a mirrored room. Sunlight is simulated by a parabolic spotlight, which is moved to coordinate with the course of the sun for the duration of one day or one year. A daylight simulator allows model simulations of light and shadow conditions in planned buildings, the testing of light control equipment and measurement of → daylight factors on the model

Daylight white, dw
→ Luminous colour

Daytime vision
→ Photopic vision

Dichroic filters
→ Filters

Dichroic reflector
Reflector with a multi-layered selective reflective coating, which only reflects a part of the spectrum and transmits others. Dichroic reflectors are used primarily as → coolbeam reflectors, reflecting visible light and transmitting → infrared radiation. They are also used for inverse effect outer envelopes on lamps to increase the temperature of the lamp (hot mirror)

Diffuse light
Diffuse light is emitted by large luminous areas. The result is uniform, soft lighting which produces little → modelling or → brilliance

Dimmer
Regulating device for varying the luminous intensity of a light source. Generally in the form of a loss-free leading edge dimmer. Conventional dimmers can be used without problems for incandescent lamps run on mains voltage. Dimmers for fluorescent lamps and low-voltage lamps are technically more complicated; the dimming of high-pressure discharge lamps is technically possible, but it is also costly and is not often provided

Direct glare
→ Glare

Directed light
Directed light is emitted by point light sources. The beam direction is from one angle only, which provides → modelling and → brilliance effects. Exposed lamps also produce directed light. The variable beam directions within the space are generally aligned to produce uniformly directed beams of light. → Controlling light.

Disability glare
→ Glare

Discharge lamp
Light source that produces light by exciting gases or metal vapours. The qualities of the lamp depend on the contents of the discharge tube and the operating pressure of the lamp. A distinction is therefore made between high-pressure and low-pressure discharge lamps. Low-pressure discharge lamps have a larger lamp volume and correspondingly low lamp luminances. The light emitted comprises only narrow spectral ranges, which to a large extent restricts colour rendition characteristic. Colour rendering can be improved substantially by adding luminous substances. High-pressure discharge lamps have a small lamp volume and have correspondingly high luminance values. The high operating pressure leads to the broadening of the spectral ranges produced, which in turn leads to improved → colour rendition. Increasing the lamp pressure frequently also means an increase in luminous efficacy

Discomfort glare
→ Glare

Distribution characteristics
→ luminous intensity distribution curve

Double focus reflector
→ Reflector

EB
Abbreviation for electronic → ballast

Elliptical reflector
→ Reflector

Emitter
Material that facilitates the transfer of electrons to be converted from the electrodes into the discharge column of the lamp. To allow ignition to occur the electrodes in a large number of discharge lamps are coated with a special emitter material (usually barium oxide)

Exposure
Represented by the symbol H (lx.h)
Exposure is defined as the product of the illuminance and the exposure time through which a surface is illuminated

Eye
The eye consists of an optical system, comprising the cornea and the deformable lens which enable images of the environment to be reproduced on the retina. By adjusting the size of the aperture of the pupil the iris roughly controls the amount of incident light. The pattern of luminances on the retina is translated into nervous impulses by receptor cells. There are two kinds of receptor in the eye: the rods and the cones. The rods are distributed fairly evenly over the retina, they are extremely sensitive to light and allow wide-angled vision at low illuminances (→ scotopic vision). Visual accuity is poor, however, and colours are not perceived. The cones are concentrated in the central area around the fovea, which is located on the axis of sight. They allow colours and sharper contours to be seen in a narrow angle of vision, but require high illuminances (→ photopic vision)