

Advantages of using LEDs

Light Emitting Diodes(LEDs) can emit light of an intended color without the use of color filters that traditional lighting methods require. This lighting system of future is more efficient and can lower initial costs.The solid package of the LED can be designed to focus its light. Incandescent and fluorescent sources often require an external reflector to collect light and direct it in a usable manner.There are many advantages of using LEDs besides saving electricity to a great extent.

When used in applications where dimming is required, LEDs do not change their color tint as the current passing through them is lowered, unlike incandescent lamps, which turn yellow.

LEDs are ideal for use in applications that are subject to frequent on-off cycling, unlike fluorescent lamps that burn out more quickly when cycled frequently, or HID lamps that require a long time before restarting.

LEDs, being solid state components, are difficult to damage with external shock. Fluorescent and incandescent bulbs are easily broken if dropped on the ground.

LEDs can have a relatively long useful life. One report estimates 35,000 to 50,000 hours of useful life, though time to complete failure may be longer.[25] Fluorescent tubes typically are rated at about 30,000 hours, and incandescent light bulbs at 1,000–2,000 hours.

LEDs mostly fail by dimming over time, rather than the abrupt burn-out of incandescent bulbs.

LEDs light up very quickly. A typical red indicator LED will achieve full brightness in microseconds; Philips Lumileds technical datasheet DS23 for the Luxeon Star states “less than 100ns.” LEDs used in communications devices can have even faster response times.

LEDs can be very small and are easily populated onto printed circuit boards.

LEDs do not contain mercury, unlike compact fluorescent lamps.