

BAPA GD

Omkar:

Introduction:

A good lighting design includes a good controls design. Lighting controls play a critical role in lighting systems, enabling users manually or automatically to:

- turn the lights ON and OFF using a switch; and/or
- adjust light output up and down using a dimmer.

In recent years, lighting controls have evolved two additional capabilities:

- adjust light source color, including shade of white light; and/or
 - generate data via measuring and/or monitoring.
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Controls:

Minal:

Manual Versus Automatic Input

The input may be manual, automatic or a combination of the two. With manual control, the input is user-initiated and implemented by hand. It is ideal for applications driven by visual needs.

With automatic control, a signal from a sensor (occupancy or light sensor), computer or another building system provides the input. The input may be based on time of day, occupancy, light level or some other condition. Automatic control is ideal for energy management applications.

Rutuj:

Intelligence

With manual control, a human makes decisions. With automatic control, a microprocessor or logic circuit performs this function. This microprocessor or logic circuit is called the lighting controller, which provides the control system's intelligence. The lighting controller evaluates input control signals based on its algorithm and decides whether to adjust lighting power, when to adjust it, and by how much. The controller may be installed as a logic circuit within a standalone control device or as a separate component within a control system.

Samyak:

Control Zoning:

Control zoning is an important aspect of lighting control system design, as zoning is the mechanism through which lighting controls are assigned to lighting loads. A control zone is defined as one or more light sources controlled simultaneously by a single control output.

Zones may be organized in accordance with energy codes, desired energy savings and flexibility, common lighting equipment, daylight availability and lighting schedules.

Gayatri:

Controls Narrative:

definition of the sequence of operations for the system. is a description of system outputs in response to various inputs for each control point. It is a written document that serves as a project roadmap for the intended lighting control system.

It can be used for,

support contract document and specification preparation;

identify criteria for testing, serve as a general reference on how the system will operate

Sensors:

Samyak:

Occupancy sensors

One benefit of a lighting control system is that it can share information with other building systems. For instance, if an office is occupied after-hours, the lighting system can communicate that to the other building systems. The temperature may be adjusted in that office, the floors' hallway lighting turned on, and the security office alerted.

Minal:

Photosensors

The two types of photosensors are for switching and dimming. The sensor used for switching communicates by binary signal to the direct digital control network when the amount of light changes. The control system can then reduce or turn off the lights altogether. The sensor used for dimming communicates a continuously variable signal reporting on the amount of detectable light, allowing the building lights to brighten or dim accordingly.

Protocols:

[Lumos Controls Lighting Control Protocols: DALI, 0-10V, DMX, PWM - What is your choice?](#)

Rutuj:

DALI:

Digital Addressable Lighting Interface (DALI) is one of the most prominent lighting control standards, making it simple to set up reliable, scalable, and adaptable lighting networks.

DALI was created to replace the simple, one-way, broadcast-like behavior of digital control, configuration, and querying of fluorescent ballasts. DALI uses three types of addressing to convey specified activities – broadcast, group, or individual – along with a command.

Omkar:

DMX:

The Digital Multiplex (DMX) lighting control protocol is a flexible lighting control protocol that gives you complete control over your lighting needs. DMX is rapidly being used in commercial buildings for RGB, color, and light temperature control applications. The protocol concentrates on current LED technology used for spectacular lighting effects because it is energy efficient and offers various colors.

Benefits / Conclusion:

Gayatri:

By adjusting the intensity of one or more layers of lighting in a space, lighting controls can:

- change space appearance;
- facilitate different functions of the space;
- alter atmosphere and mood;
- reduce glare; and/or
- increase user satisfaction by providing users the ability to control their lighting.

Rutuj:

Energy management

By reducing lighting ON time, intensity or zoning, lighting controls reduce both demand and energy consumption.

According to a Lawrence Berkeley National Laboratory (LBNL) study, popular lighting control strategies produce 24-38% average lighting energy savings, which reduces building operating costs.

Don't say

Needs:

The need of such systems are there to maximize our system's energy savings. These are also created for our convenience, security and participate in Green Building Initiatives.