Lighting Control 101

- What is lighting control?
- Wants versus Needs?
- Commonly used controls in the market today.
- What is to come?
- Questions
What is Lighting Control?

- Lighting Control is the ability to regulate the level and quality of light in a given space for specific tasks or situations.
Want versus need...

- Want – Task requirement, Set the mood, Lower electrical bill, Extend life of fixture, To be “green”, Because it can be fun!
- Need – Meet energy codes, Meet operational budgets, Security and Safety, Task requirements, etc.
Lighting energy accounts for about 35%–40% of a commercial building’s total energy consumption.

Mandates for controls are on the rise – ASHRAE, IECC, Title 24, etc.

Green Building Incentives – LEED

Ideal Solution for reducing energy in a variety of applications.

- Commercial Office Buildings
- Education
- Healthcare
- Parking Facilities
Commonly Used Lighting Control Today

- Manual – Toggle switch, pushbutton, etc.
- Presence Detectors – Occupancy/Vacancy Sensors.
- Photocells and Daylight Harvesting Sensors.
- Traditional Relay Panels – Stand alone & Networked versions.
- Room Controllers.
- Addressable Lighting Controls.
- Fixture Integrated Controls.
Automatic Controls – Presence Detectors

- Occupancy/Vacancy Sensors
- Passive Infrared
- Ultrasonic,
- Dual Technology
- What to use where
- ROI
Presence Detectors ROI

- Most commonly asked question, “How much can I expect to save with adding a presence detector?” Answer = 30%–50% on average.
- Pays for itself in about 3 years on average.
- When coupled with other energy saving strategies, ROI is even quicker.
Photocells & Photosensors

- Solid state device that converts light into electrical energy by producing a voltage.
- Photocells used to create a contact closure to signal fixtures “ON” when there is not enough natural light, i.e. Exterior Lighting.
- Photosensors give a measurement of light—“Footcandles” or “Lux”. Action is then determined at a certain level, i.e. maintaining 35FC at table.
- Average savings is 5%-15% depending on strategy used.
Traditional Relay Panels

- Can be stand-alone or in a network group of panels
- Used to control on/off and sometimes dimming output of a fixture.
- Commonly includes an astronomical time clock.
- Commonly connected to a modem or Ethernet.
- Commonly includes inputs for presence detectors, photocells, switches, et.
- Commonly interfaced to other systems such as BMS, Security, Nurse Call, A/V, etc.
Room Controllers – Distributed Controls

- 1–4 relay box located above ceiling of space being controlled.
- Sensors and switches connected directly to the switch box.
- Stand-alone, but can sometimes be connected to a larger networked system in the building.
- Growing in popularity with engineers as well as contractors.
Addressable Lighting Controls and Energy Management Solutions

- Lighting control system in which all devices are assigned a numerical address in the control software. As a result, they are able to be controlled separately or as a group through software. This includes, switches, sensors, relays, etc.
- Many Communication Protocols.
- Many Communication bus types.
- Many Topologies.
- Digital and Analog.
- Typically run by front-end.
- Class 1 vs 2 communication.
Benefits of Addressable Lighting Controls

- Provides granular control and 2-way communication of the lighting system while allowing large amounts of data to be processed and recorded.
- Ability to deploy several energy saving strategies all at once, or certain strategies to certain fixtures.
- Reporting – What are we saving and how?
- Real-time energy usage – Can provide a “dashboard” to display in public area for “Green” awareness. Carbon footprint.
- Troubleshooting ability – Fixture vs. Sensor vs. Relay.
Aside from your typical switches on the wall, end users can “interface” with the lighting control system via smartphone, VOIP phones, touch screens, and computers.

- **Mobile Software**: Native software applications provide handheld control from your preferred mobile device.
- **VOIP Telephone Software**: Lighting control software dynamically published to VOIP phones.
- **Touch Screen**: 5.7” Touch Screen with intuitive visual interface and Ethernet connectivity.
- **Lighting Management Software**: Internet software with DXF file import provides total control over the lighting system.
Maximizing Energy Savings through Software

Facility Manager

50 - 75% ENERGY SAVINGS

SOFTWARE ARCHITECTURE

Access interface through web browser
- IE, Safari, Chrome, Firefox

Simultaneous users
- Thousands of connections, VOIP, mobile

Multi-building consolidation
- Through secure datacenter
Current trends in Lighting Control. Where are we headed?

- Power Over Ethernet (POE) Lighting
- Distributed Low Voltage Products
- Wireless Connected Lighting (Blue tooth, Zigbee, Wi-Fi.
- IoT (Internet of Things) – Cloud based controls
- Bluetooth Beaconing for Wayfinding (Indoor GPS) for large buildings or retail applications
Competitive landscape – IT / Ethernet

Homeruns?

Centralized?

15W 15W 15W 15W

23W 23W 23W 23W

40W 40W
DLVP system components

Low-voltage power modules

Control devices

Addressable low-voltage LED lighting Fixtures
Wireless Connected Lighting offers an intelligent, simple, easily commissioned control system.

- Supports external or integrated occupancy and daylight sensors
- Designed for addressable luminaires to be intelligent and reconfigurable
- Simple commissioning while providing a flexible and reconfigurable wireless topology for on-the-fly space adjustments.
The Two Best, Most Reliable Lighting Control Products on the Market Today?

HaHaHaHaHa...

“Back in my day…”
Questions??

MANY THANKS!
Have a Great Day!!