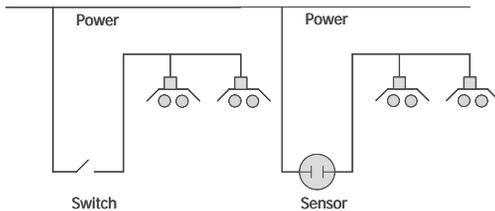


LIGHTING CONTROLS: SOME SUCCESSES STILL AWAITING

Lighting is often the largest electrical load in a typical office, school, or store. However, the cost of lighting energy pales when compared to the cost of the employees using the space. Occupancy sensors and time-based controls are effective at saving energy, yet neither provides a direct benefit to the occupant. Potential energy savings and occupant satisfaction increase dramatically if users can *control* the lighting level, not simply turn it on or off.



Digital ballast technology promises reliable and cost-competitive fluorescent dimming that can improve energy savings, occupant satisfaction, and building operation. Using the non-proprietary Digital Addressable Lighting Interface (DALI) protocol, contractors can install lighting networks with interoperable components from various manufacturers.

The current DALI protocol applies only to ballasts and not to associated control components, such as sensors and controllers. This project developed a draft protocol for these additional control components that will allow designers, contractors, and manufacturers to install fully interoperable DALI systems.

ENHANCED DALI CONTROL STANDARD

PIER RESEARCHERS WORKED WITH THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA) TO DEVELOP THE DRAFT ENHANCED DALI LIGHTING CONTROLS PROTOCOL. THE DRAFT STANDARD INCLUDES INPUT FROM MAJOR MANUFACTURERS, DESIGNERS, AND END-USER GROUPS AND HAS BEEN SUCCESSFULLY DEMONSTRATED IN TWO FACILITIES. THE FINAL STANDARD IS EXPECTED TO RECEIVE IEC APPROVAL IN LATE 2005.



DALI allows for different preset "scenes," as shown in these photos.

EXPANDED USE OF POWERFUL CONTROLS

The enhanced DALI protocol will provide orderly communications between all of the devices on the network.

Equally important, designers can easily specify control devices for each space. This capability eases the installation of dimmable systems and supports individual occupant preferences while maximizing energy savings and controlling demand.

Benefits

- Wiring and signal specifications guarantee messages are heard and understood by all devices
- A collision management process minimizes the possibility of data loss
- A programming and monitoring control device operates parameters from a central location to reduce operation and maintenance costs.
- The ability to easily implement flexible control scenarios according to changing building needs.
- Occupant empowerment.
- Increased occupant satisfaction and productivity, as demonstrated by the Light Right Consortium.
- Reduced energy consumption and the ability to shed lighting on demand.
- Energy analysis.
- Lamp failure reporting.
- Reduced occupant complaints of glare/headaches.

INTERESTED?

Many in the lighting and buildings sector can use these project results, including:

- Building owners/managers
- Facility managers
- Lighting designers/specifiers
- Contractors
- Commissioning agents
- Electric utility staff

Key next steps include:

- *National Electrical Manufacturers Association (NEMA) and International Electrical Commission*—Adopt the new standard.
- *NEMA and Efficiency Advocates*— Educate lighting and control manufacturers and specifiers on the benefits.
- *Building Owners*—Direct designers/specifiers to implement the new protocol.
- *Lighting Designers/Specifiers*— Implement the enhanced standard in additional buildings.

This project was part of the PIER Lighting Research Program. To view the project results, as well as other current research activities, visit www.energy.ca.gov/pier.

Additional information about this technology can be found at:

- PIER contractor site: www.archenergy.com/lrp/lightingperf_standards/project_5_4.htm
- PIER program site: http://www.energy.ca.gov/pier/buildings/projects/500-01-041-0-5-5_4.html



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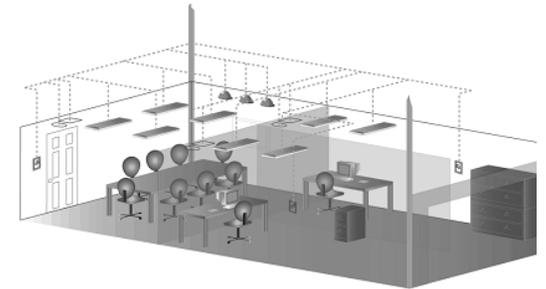
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ENHANCING THE DALI LIGHTING CONTROLS PROTOCOL



IMPROVING OPEN- STANDARDS LIGHTING CONTROLS

Public Interest
Energy Research

Arnold Schwarzenegger, *Governor*
California Energy Commission
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