

# ***Debunking the Mystery of “Open” Lighting Controls***

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# *History Perspective of Lighting Controls*

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- Proprietary and Stand-alone from Inception
- Limited to Simple on / off in 1980's
- Integrated Occupancy Control added in 1990's
- LonTalk Protocol (LonWorks) – 1993
  - Adapted well in European Market
  - Permits integrated Control Strategies with HVAC
  - Too expensive for Ballast Control
- DALI<sup>®</sup> developed in 1998 by Ballast Manufactures, published as an IEC Standard 60929
  - Enables Cost Effective Dimmable / Addressable Lighting Control

# ***Dimmable Lighting Control Options***

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- 0 – 10 Vdc Dimming Ballast + Proprietary Lighting Controller and Lighting Input and Scene Control Devices
  - **Example: Encellium; Wattstopper DLM**
- DALI® Ballast + Proprietary DALI Lighting Control Devices
  - **Example: Starfield Controls; Philips / Tridonic AgiliT; Lumenergi**
- Proprietary Dimming Ballast + Proprietary Lighting Controller and Lighting Input and Scene Control Devices
  - **Example: Lutron Ecosystem / Quantum**
- DALI Ballast LEDs to Incandescents + Open Control Devices (LON, KNX, BACnet and Web/Smart devices)
  - **Example: [elitedali](#)**
- DALI Ballast + Open DALI Control Devices (NEMA 243)
  - ***Not Available Yet!***

# *Open Lighting Control Benefits*

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- Lower initial cost to the Owner
  - Simple wiring; Shared Control Trunk
- Higher level of maintenance to the Facility Manager
  - Status of lamp and ballast
- Greater flexibility to the Lighting Designer
  - Change grouping and scenes via software
- Lower energy costs to the User
  - Reduced power consumption, parasitic power consumption
- Greater sense of control to the Occupant
  - Individual control and method
- 100's of DALI ballast manufacturers outputting > 1M units/day rapidly growing globally

***If DALI is so Good -  
Why until now, has it seen so Little Market Acceptance  
in the US?***

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- Essentially proprietary lighting solutions
- Poor User Interface and Database Management Tools
- Complicated Commissioning
- High Cost of DALI Ballast (low sales volumes)
- Limited Interface Capabilities with BAS
- Limited Availability of Input Devices and Scene Controllers

# DALI System Value Proposition – Today

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- ✓ 7 control strategies
- ✓ System real-time feedback
- ✓ Load Shedding /Demand Response
- ✓ Contributes to LEED certification
- ✓ Open protocol solution
- ✓ Smooth dimming
- ✓ Personal controller
- ✓ Simple commissioning
- ✓ Integrated with convergent Web based BMS
- ✓ EPACT compliant

# *Truly Open Lighting Control Systems offer -*

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- *Savings of 40-70% on the lighting energy consumption*
- *Increased comfort*
- *Lower cost of acquisition and ownership*
- *Wider supplier choice, based upon best of breed products and service*
- *Global standards offer globally standardized solutions*
- *Solutions based upon standards not product manufacturer/supplier*

# *Advanced Control Strategies = Energy Savings*



Daylighting

35% to 45%  
in daylit  
areas



Task  
Tuning

15-35%



Scheduling

15-25%



Occupancy  
sensing

15-30%



Personal  
Controls

7-10%



Demand  
Response

Incentives  
and  
compliance

**50-70% Total Savings with  
Integrated Strategies**

# *Increased Comfort and Safety*

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## Improved Aesthetics

Dimming provides improved workspace ambiance



## Right-Lighting

Personal comfort without over or under lighting



## Intelligent Shedding

Dimming instead of simple on/off



## Smart Scheduling

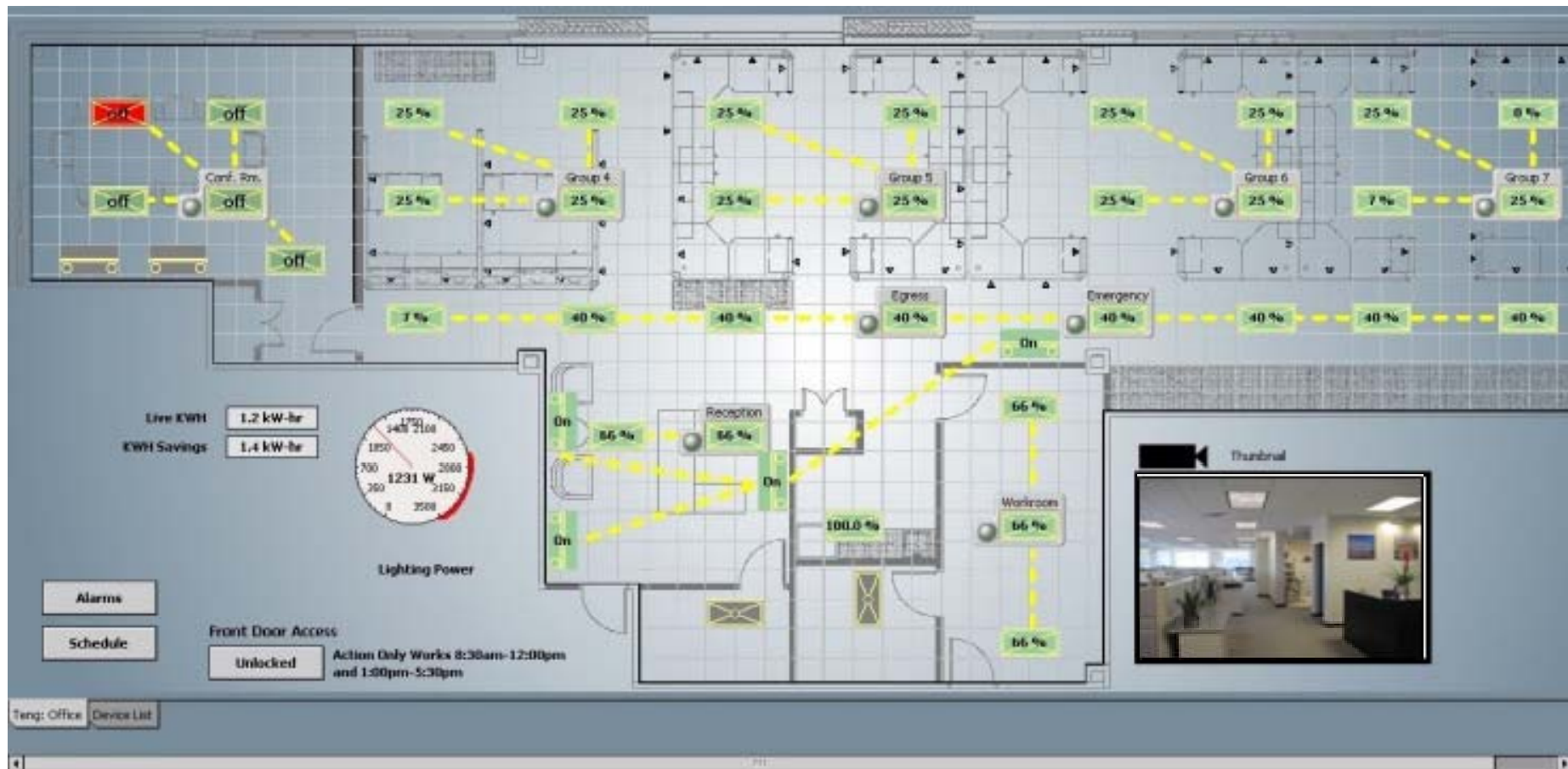
Courtesy flash with occupancy sensors



## Emergency Capabilities

Animations and fail safe features

# Typical Lighting Control Web User Interface



# Fully Integrated Architecture with BAS

