

DATA CENTER SOLUTION OVERVIEW

Building-Performance Lighting for Data Centers



smartengine's building-performance lighting at a LEED Gold data center in Oregon

- Save 75% on lighting energy costs, improve PUE and gain LEED points
- Monitor environmental threats to uptime
- Reduce maintenance, enhance security
- Use category cable to power lights for low cost install and flexibility
- Recommended in ANSI/TIA 942A

Today data centers are under constant pressure to find ways to improve power usage effectiveness (PUE) and drive higher uptimes. smartengine's Building-Performance Lighting Platform provides on average a 75% reduction in energy usage from lighting and serves as a single system to monitor disruptions to uptime. The system scales well across a variety of environments from large Fortune 500 data centers and co-location facilities to smaller mission-critical facilities.

ACHIEVE THE LOWEST TOTAL ENERGY FOOTPRINT

Lighting remains the low-hanging fruit to quickly and easily capture energy savings. By controlling LED's that are highly-efficient at dimming and giving per-fixture control, smartengine delivers best-in-class energy savings for data centers.

The system can be used in multiple environments:

- In a **lights on** data center, it enables significant dimming and energy savings while providing enough light for security cameras to operate.
- In a **lights out** data center, it deploys motion-tracked lighting on a "follow-me" basis down individual aisles using only the minimum energy necessary to light the area around occupants. Automated policies ensure lights out behavior in the facility.

LOW VOLTAGE LIGHTING – LOW COST INSTALL & FLEXIBILITY

smartengine developed the world's only smart building platform to power and control lights and a high-density sensor grid using low-voltage category cable for low cost installation and ultimate flexibility. This approach enables "lighting on demand".

Lights and controls can be easily installed or moved by pulling cat. 5e/6/6a cable to new locations. No line voltage is required for LED fixtures. Commissioning is Web-based using simple drag and drop selection of fixtures associated with locations.

The TIA has adopted content that includes energy efficient lighting and controls in its soon to be published revision to the 942 standard.

KEY DATA CENTER BENEFITS	
Save Energy	<ul style="list-style-type: none"> • Average 75% lighting energy savings • LEDs run cooler, reducing heat load in facility • smartengine contributes up to 29 points for LEED certification
Monitor Threats to Uptime	<ul style="list-style-type: none"> • Per-fixture sensors for temperature, motion/occupancy, light level • Sensors extensible for air quality, pressure, etc. • Programmable alerts via email or flashing the lights
Reduce Maintenance and Enhance Security	<ul style="list-style-type: none"> • smartengine helps LEDs outperform their 50,000 hour lifetime and don't require bulb or ballast replacement • Lights can run at low levels for security camera operation • Verify security walkthroughs and/or get alerts for unauthorized presence
Remote Monitoring and Control	<ul style="list-style-type: none"> • Web-based control and monitoring • Flash lights remotely for technicians • Report on actual energy usage and presence

MONITOR ENVIRONMENTAL THREATS TO UPTIME

Lighting is ubiquitous in all interior spaces, often deployed in a grid-like pattern with power delivery. Given these attributes it is the most logical system to cost-effectively integrate a pervasive sensor and control network. smartengine pays for itself with energy savings and delivers value far beyond lighting to data center operations by concurrently deploying a smart network that senses and reports on multiple environmental parameters.

Including:

- High accuracy occupancy sensing
- Ambient temperature mapping
- Programmable alerts via email or flashing lights
- Reports that can show when people have or have not been detected in any area of the data center
- **For co-location facilities, create customized environmental reports on a per-client basis**



smartengine's intelligent lighting control system delivered a smarter, more cost-effective way to control LEDs in a data center environment, while providing innovative features such as "follow me" lighting for the specific aisles where people are present.

In this case, the customer has improved data center lighting efficiency by 90 % and contributed to reduced HVAC load.

REDUCE MAINTENANCE, MONITOR LIGHTING REMOTELY

Using LEDs controlled by smartengine means less maintenance for your lighting system. LED fixtures typically run for 50,000 hours and managing them with smartengine can substantially lengthen their life. In addition, LEDs do not require bulb changes like fluorescents so there is less need to arrange for maintenance and repair. smartengine's Building-Performance Lighting Platform provides full, Web-based controls and reporting, so that your entire lighting system can be remotely managed, metered, and controlled. This coverage is comprehensive – all capabilities in the system are available through remote Web management, including usage reports, energy metering, fixture maintenance, and full policy control over setting light levels, time-outs, daylight harvesting, and motion policies.



The smartmanager provides historical and real-time energy consumption data to the fixture level.

SMARTENGINE INFRASTRUCTURE



The **smartdirector** provides a browser based user interface for all of the smartengine devices, stores smartsensor data and provides web services and BACnet/IP APIs.

The **smartengine** provides power, control and communication for LED fixtures and smartsensors.

The **smartsensors** capture real-time data on motion, temperature, brightness and power consumption.