

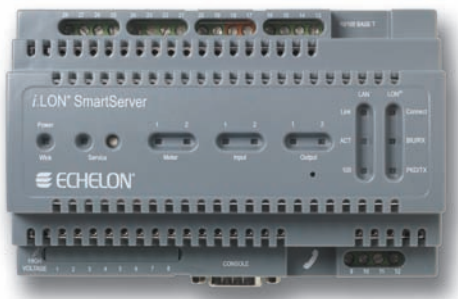


**The i.LON®  
SmartServer 2.0**

**Lighten Your  
Streetlights'  
Energy Load and  
Lower Your Costs**



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with the **i.LON  
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Many cities are upgrading their streetlight technologies to LED lights. It's a great, green way to lower energy costs — especially when switching from mercury-vapor or high-pressure sodium lamps. Adding an intelligent network to control those lights is even smarter, letting you reduce energy costs by 60 percent or more. And the extra benefits of this network — streamlined operations, lower maintenance costs, improved safety, less light pollution, and enhanced urban environments — may end up being even greater than the energy savings.

How do you get this system? Start with the i.LON SmartServer 2.0 segment controller. The SmartServer, combined with electronic ballasts powered by our LONWORKS® technology, is the cornerstone of intelligent street lighting systems around the world — and it's already the leading segment controller in the European market.

**Start with the SmartServer.** Our best-of-class server lets you manage streetlights, gather real-time data, and interface with any IP network. It ensures communications in challenging environments by creating a power line mesh network, and works with thousands of smart LONWORKS based products — including pollution sensors and ambient light sensors — that can be added at any time. The SmartServer presents individual luminaire status and segment status using industry-standard Web services (SOAP/XML), so cities can easily integrate their street lighting system with their enterprise management software. SmartServer installations are in place today using a variety of WAN technologies including WiFi, GSM modems, 3G modems, and Ethernet.

**Add smart streetlights embedded with LONWORKS technology.** Each luminaire in the street lighting network includes a ballast that's been integrated with one of our power line smart transceivers. This lets it automatically detect lamp failures, dim the light in 0.5-percent increments, and report vital statistics such as consumed energy, lamp-burning hours, voltage, current, and ballast temperature. It also lets each luminaire act as its own energy sub-meter. Numerous manufacturers produce luminaires and ballasts based on our technology, and new features are constantly being added. For example, LED lights can flash in a predetermined sequence to help route emergency traffic or help emergency response personnel locate an accident scene more quickly.

Ballasts communicate over a city's existing power lines via our power line signaling technology — the world's most proven and reliable networking solution, with an installed base of over 32 million units. This technology, which uses ISO/IEC 14908-1 and -2 standards, is immune to the trucks, hills, trees, weather, and new construction that can bring a radio-frequency-based system to its knees.



**Manage with Web-based host software.** Control your entire network with easy-to-use host software. These Web-based applications, provided by several manufacturers, offer a highly visual graphical environment to help city personnel manage WAN communications, track failures, check system health, automatically install new SmartServers, and collect, organize, and store data. They also extend to higher-level applications, for use with service databases, billing, notification, energy management, and other existing systems.

## Benefits

**Greatly reduce energy use.** Our smart street lighting network adapts light levels to meet real-time requirements. Dim or brighten lights according to a preset schedule or in response to weather events, like an increase in cloud cover.

**Lower maintenance costs.** Maintenance companies can track and monitor individual lamps, and replace components based on actual performance history — often before they fail. If they do fail, automatic alarms notify the system, so there's no need for roving inspections. The result: safer cities that cost less to operate.

**Install quickly and affordably.** The SmartServer's automatic discovery and commissioning feature means new devices can be bought and installed online in minutes instead of hours, and with minimal training. The host software gives you an overall view of the entire system, so you can make smart decisions, fast.

**Future-proof your investment.** The SmartServer works with any WAN your city deploys — now and in the future — ensuring a safe, future-proof investment for your community. But that's not all. Since the SmartServer is designed to work with any LonWORKS based sensor or control device, as well as other industry-standard control protocols, it offers unparalleled flexibility:

- Add new technologies as they become available, without changing your network or retraining personnel.
- Add new services, such as traffic and environmental sensors, flashing LEDs for emergencies, or on-demand lighting for special events — without touching your infrastructure.
- Mix and match luminaire types — using LEDs in one sector, for instance, and HID or HPS in another.
- Add new devices to your street lighting network by simply plugging them in.

## Provide high reliability, even in the face of urban growth.

The LonWORKS approach supports urban growth, because new buildings, road construction, and other developments won't affect the power line communications technology.



## Real-world Savings

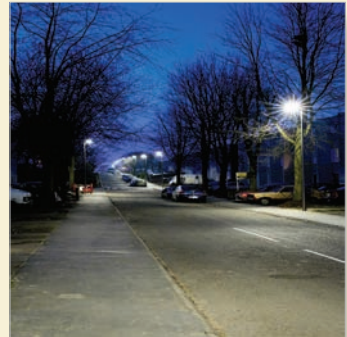
Throughout Europe, intelligent street lighting systems based on LONWORKS technology are producing dramatic results.



**Oslo, Norway.** A network of 10,000 intelligent streetlights eliminated 1,440 tons of carbon dioxide emissions from the Norwegian capital and reduced energy use by 70 percent. The city switched from mercury to high-pressure sodium lamps and replaced magnetic ballasts with electrical ones. The system remotely monitors and controls the lights, dimming them based on traffic, weather, and available light. It also analyzes lamp behavior and identifies lamp failures, and is expected to pay for itself within five years.



**S nart, France.** This fast-growing area about 35 km south of Paris uses an intelligent street lighting network to cut annual energy use by roughly a third. Automatic dimming adjusts light brightness as needed. During rush hour, for instance, brightness is increased from 60 percent to 80 percent; late at night, lamps are dimmed to as low as 35 percent with no discernible impact on visibility. And while it used to take maintenance teams up to 15 days to identify lamp outages, now they detect failures immediately. They can even anticipate problems and diagnose them before they affect operation, or are noticed by drivers and residents.



**Milton Keynes, UK.** Urban renewal, safety, and energy efficiency were the top priorities for the Milton Keynes City Council when it decided to renovate its city's lighting infrastructure. The council chose ceramic metal halide luminaires not only for their energy efficiency but also their light quality, which approaches that of natural sunlight. For further energy savings, everything was connected on a smart LONWORKS network. The result: a 30-percent increase in energy efficiency beyond the savings from the new luminaires. In addition, the improved light quality means security cameras can produce clearer images, and the network's real-time monitoring keeps the lights on — which has led to reduced crime and lower maintenance costs.

### About Echelon

Echelon Corporation is leading the worldwide transformation of the electricity grid into a smart, communicating energy network — one that connects utilities to their customers, and creates energy-aware homes and businesses that react to conditions on the grid.

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