ECHELON

The i.LON® SmartServer 2.0

The Smart Way to Save Energy and Lower Operating Costs

The i.LON SmartServer 2.0 lets you:

- Reduce energy and operating costs.
- Initiate demand response events.
- Manage street lighting systems.
- Monitor and control remote assets.

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The Smart Way to Save Energy and Lower Operating Costs

Echelon's i.LON SmartServer 2.0 is a versatile smart energy manager that helps your business achieve its operating and energy-efficiency goals. Designed to connect to IP-based applications such as enterprise energy management solutions, demand response programs, streetlight management systems, and high-value remote asset management programs, the SmartServer lets you link thousands of electronic devices to control centers. Not only can you access, control, and monitor these devices, but you can use captured data to save energy, improve operations, and lower maintenance costs.

- For facility managers, the SmartServer is the key to remotely accessing, monitoring, and managing automation equipment like air-handling units or lighting systems.
- For chief operating officers, it's the linchpin that lets them assess and implement best practices across hundreds of remote branches.
- For energy services providers, it's the connector that fuels demand response applications and virtual power plants.
- For city managers, it's the street lighting segment controller that lowers energy costs, maintains billing, and supports a green vision.

Easy to deploy and manage, and capable of both local and remote control, the SmartServer offers unparalleled flexibility. Use it as a standalone server, or integrate it with the control system of your choice. With built-in drivers for industry-standard protocols like Echelon's LonWorks® technology, SOAP/XML, Modbus, M-Bus, digital I/O, and pulsecount input, and custom driver support for everything else, the SmartServer offers unprecedented connectivity at no extra cost.

Features

Programmability. Expand the SmartServer's feature set by writing custom applications — for energy optimization, data analysis, and room and lighting control, for example. Or, create modules that bridge to legacy systems using the RS-232 or RS-485 ports. A flexible licensing system protects your software development investment, letting you decide how your applications are distributed and whether they require activation.

i.LON Echelon Enterprise Services. Remotely deploy new sites, upgrade existing sites, and automatically archive data from site data logs — all from one software bundle.

Standalone mode. The SmartServer can be used as the brains of a network in standalone mode. This lets you expand your markets on a single hardware platform, whether your services run tethered or disconnected. Everything is in a single box — network management, installation and configuration, scheduling, data logging, alarming, trending, and communications.

Web 2.0 user interface. An intuitive interface reduces the need for costly front-ends and tool-specific user training. The Dynamic Navigation pane in the SmartServer Web pages offers easy access to configuration Web pages and embedded applications. You can set up peer-to-peer connections between devices, and configure and manage networks, channels, devices, functional blocks, and data points.

Built-in applications. Programs for scheduling, alarming, data logging, meter reading, and network integration help you easily integrate your control system. For example, logging functions can collect data from networks, devices, or sensors to record energy usage and operation hours. And even if you lose Internet connectivity, your remote equipment will still be managed properly and its data will be stored for later collection. (For instance, your diesel engine in a remote oil field will still be able to report its status when the 3G modem can connect again.)

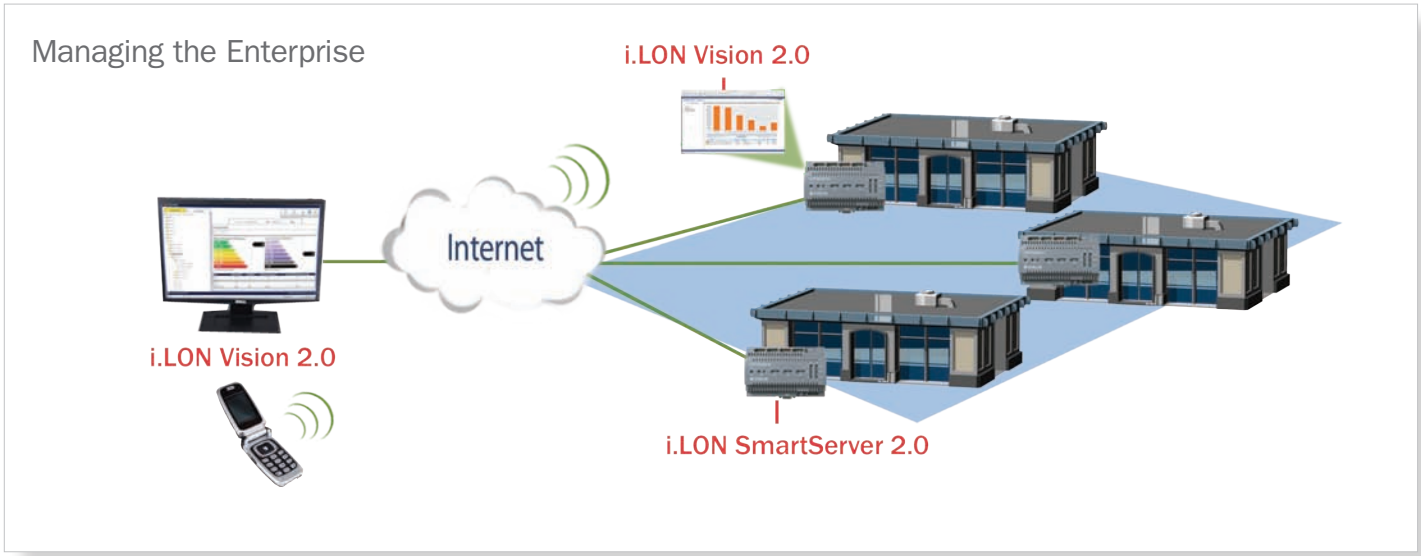
The SmartServer User Interface

Hardware I/O. Easily transform legacy, non-communicating equipment into smart, networked devices by using the provided inputs and outputs. For example, a digital input from a moisture sensor, indicating a burst water pipe, could trigger an internal high-voltage, high-current relay to shut down legacy electrical equipment, as well as send an e-mail message to the maintenance staff.

i.LON Vision 2.0 Web Authoring Tool. Build visually appealing Web pages quickly and easily with this included tool, which speeds customization, lowers costs, and helps you replicate local user interfaces for other jobs.

Standards-based protocols. Whether you want to connect to a LAN, WAN, or control network, the SmartServer lets you do so quickly and cost-effectively. Open connectivity is ensured based on accepted international standards — including ISO/IEC 14908-1, ISO/IEC 14908-4 IP-852, Modbus, M-Bus, and SOAP/XML over Ethernet or modem — which complement the digital I/O, pulsecount input, and RS-232 and RS-485 ports.

For centrally managed networks, the SmartServer can directly access an LNS® Server, the most widely used network operating system for LonWorks networks. The SmartServer can also perform many common network management functions using the LNS Server and it can launch LNS plug-ins, making the SmartServer the only



installation tool you need for many LNS networks. In addition, you can use the SmartServer as an LNS Remote Network Interface to connect locally or remotely to LNS or OpenLDV™ applications including the LonMaker® Integration Tool, and you can use the server as a LonScanner™ interface for the LonScanner Protocol Analyzer. The SmartServer works seamlessly with any LNS based application or tool, regardless of vendor.

Benefits for Key Applications

Using the SmartServer to connect to your IP-based enterprise application offers a number of benefits, including lower energy, operating, and maintenance costs; improved performance; and a faster return on investment.

Enterprise Energy Management

Today's large enterprises — or those organizations with many facilities scattered across a wide region — must find new ways to operate more efficiently in order to lower energy use and carbon dioxide emissions. The SmartServer plays an important role in making your company a green corporate citizen. Facility managers can integrate it with their building automation systems to monitor and control HVAC, lighting, security, and elevator subsystems. Key enterprise energy management applications include:

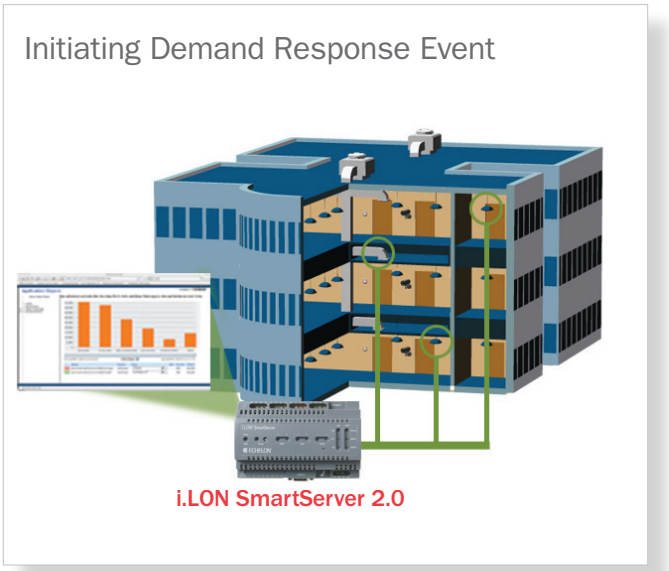
- Quick-service Restaurants
- Data Centers
- Banks
- Retail/Convenience Stores
- Schools

Save energy without sacrificing comfort. Maintain a comfortable environment with programmable thermostats, and temperature and occupancy sensors that automatically adjust conditions based on room occupancy and time of day. Coordinate equipment start-up and shut-down schedules, and control outdoor signage based on built-in sunrise/sunset timers. Make indoor and outdoor lighting more efficient with energy-saving lamps, dimmable digital ballasts, and sensors that change brightness based on available natural light.

Use the protocol of your choice. Easily upgrade to open building automation systems and LonWorks networks, or continue working with your existing systems, connecting to equipment that uses Modbus, M-Bus, or another existing protocol.

Manage your system, your way. Two network installation modes — managed and standalone — offer the choice of centralized or localized management, giving you maximum flexibility to leverage your corporate resources as well as your local/regional relationships.

Reduce deployment and commissioning time. Automatic discovery and installation reduces time spent installing, replacing, and upgrading devices and reduces employee training requirements. Add the ability to save and replicate the installation, and you can deploy or update hundreds of locations in a matter of days.



Demand Response

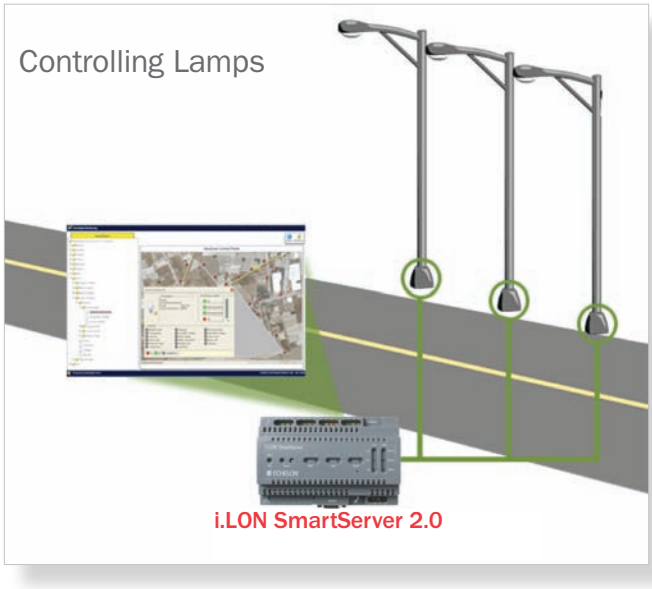
An automatic demand response program, powered by the SmartServer, offers a smarter, easier-to-implement solution than manual demand response. When regional grid operators or utilities anticipate blackouts or brownouts due to high electricity demand, they can notify participating customers, via Web services, of the scheduled time and duration of the demand response event.

Flexibility and choice. The flexibility of the SmartServer lets you use it as a smart controller for in-premise systems like LonWorks building automation systems, Modbus mechanical HVAC equipment, M-Bus meters, solar inverters, and more.

Easily reduce your energy bill. At a scheduled time, the SmartServer can automatically trigger events that curtail energy consumption. For example, it can dim lights, adjust HVAC set points, or shut down non-critical equipment. Because the SmartServer makes power usage curtailment automatic and smart, tenants and homeowners often don't even realize they're in an energy-saving mode.

Managed Street Lighting

Cities everywhere are evaluating their streetlights, looking for ways to reduce budgets, curb light pollution, enhance urban environments, and become more green. Many are switching to new technologies, such as LED lights, which use less energy. Adding an intelligent network to control those lights is the next step. The SmartServer, combined with LonWorks powered ballasts, is the cornerstone of intelligent street lighting systems around the world — and it's already the leading segment controller in the European market.



Greatly reduce energy use. Lower electricity use and operating costs by 30 percent to 60 percent.

Lower maintenance costs. Track and monitor individual lamps and replace components based on age and performance history — before they fail.

Install quickly and economically. Our managed street lighting solution uses the same wires that power the streetlights, so installation costs are lower. The system can plug into any IP-based city WAN. Power line mesh networking technology ensures extremely reliable communications to lower costs and increase performance.

Reliable performance. Using existing wires eliminates the poor performance common to radio frequency (RF) communications backbones, which are susceptible to interference from trucks, building construction, other RF devices, hilly streets, and changing weather conditions. In addition, the SmartServer's sunrise/sunset scheduler ensures proper, economical light output, so there's no need for unreliable, error-prone outdoor light sensors.

High-value Remote Asset Management

Making sure remote field equipment is working properly has never been easy and has always been costly — both in terms of maintenance and the value of your performance contracts. With the SmartServer's flexible connectivity and its ability to communicate using any IP connection, monitoring your high-value remote assets has never been easier or more cost-effective.

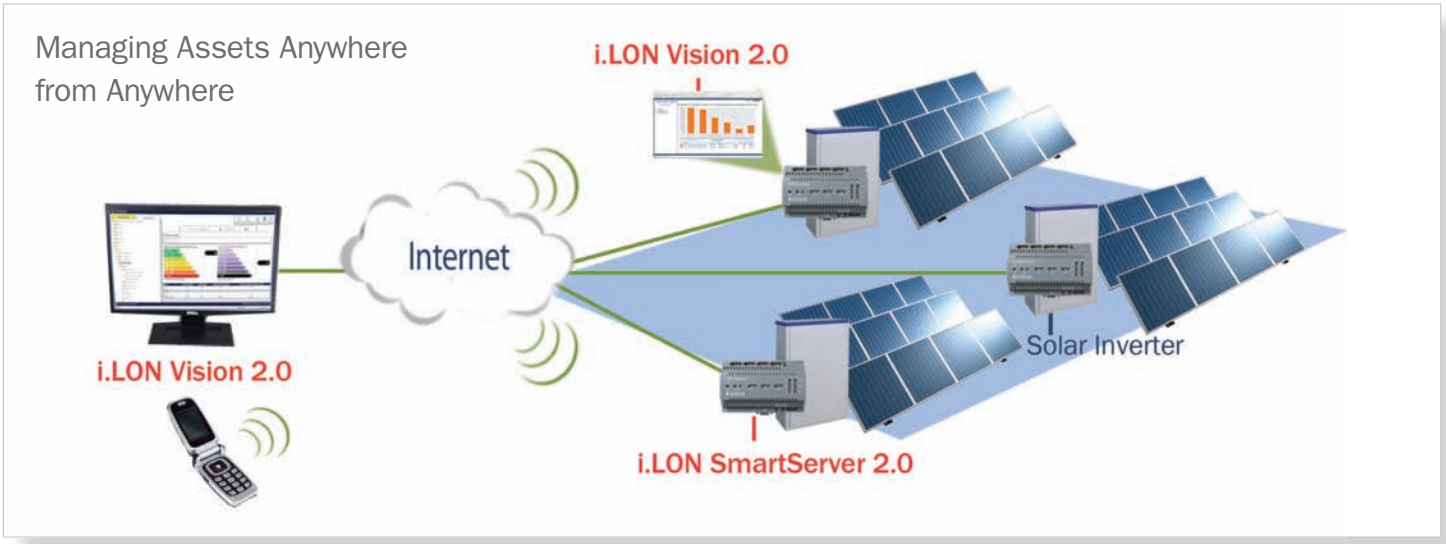
Use any IP connection. Add a cellular modem or pager, or hop on to a wireless IP network to check the health and status of remote equipment.

Smart products get even smarter. Assets that use industry-standard connections like Modbus, such as solar power inverters and standby power generators, can communicate over the Internet using the SmartServer for a fraction of the cost of dedicated communications solutions. That's because the SmartServer logs data, supports remote queries, and sends back all the information your smart devices can supply — right out of the box.

Save Energy and Lower Operating Costs

Although energy prices and operating costs continue to rise, and affordable alternative energy is years away, the SmartServer is a solution that's available today. Feature-rich and flexible, and easy to deploy and manage, it's the smartest way to immediately eliminate energy costs, often paying for itself in less than a year.

To find out how the SmartServer can help you meet your operating and energy-efficiency goals, contact your local sales representative.



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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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