

The i.LON® SmartServer 2.0

The Smart Way to Save
Energy and Lower
Operating Costs



The i.LON SmartServer is a versatile smart energy manager that connects to IP-based applications such as enterprise energy management, demand response programs, streetlight management systems, and high-value remote asset management programs.

The server not only allows you to access, control, and monitor electronic devices, but also lets you use data intelligently to save energy, improve operations, and lower maintenance costs. 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

User Interfaces

- Built-in Web pages for setup, network installation commissioning, scheduling, alarming, data logging, and network integration.
- The included i.LON Vision 2.0 Web Authoring Tool lets you create custom Web pages quickly and easily.
- Serial and Telnet console interface for advanced configuration.

Programmatic Interfaces

- Web services using SOAP/XML.
- Standard WSDL file suitable for .NET and Java Web services integration.
- LNS® Remote Network Interface (RNI) for local or remote connection to LNS or OpenLDV™ applications including the LonMaker® Integration Tool, supporting the following limits:
 - 32,768 address table entries
 - 255 outgoing transactions
 - 3,000 dynamic network variables
- HTTP and HTTPS interfaces for Web browser-based interfaces.
- i.LON API for custom applications and drivers.

Network and Device Interfaces

- IP via built-in 10/100BaseT Ethernet interface, optional internal 56K V.90 analog modem, or external GSM/GPRS or 3G modem.
- TP/FT-10 free topology twisted pair or PL-20 C-band power line ISO/IEC 14908-1 (LONWORKS) with built-in LONWORKS transceiver.
- Modbus RTU with built-in RS-485 transceiver.
- Modbus TCP (Modbus TCP/IP) with built-in Ethernet interface, optional internal analog modem, or external GSM/GPRS modem.
- M-Bus with built-in RS-485 transceiver and optional M-Bus translator.
- Custom drivers using built-in Ethernet, RS-232, and RS-485 interfaces.

Built-in SmartServer Applications

- Scheduling: time of day, day of week, date, and sunrise/sunset relative.
- Alarming: data point health and value monitoring; flexible reporting.
- Data logging with automatic transfers to historical data repositories.

- Meter reading.
- Network integration with customizable data type translation, analog functions, and case logic for converting, splitting, and merging structured data points.
- Built-in Web pages for configuring and using all applications.
- Unified data model provides easy access to all your data regardless of manufacturer or communication protocol.
- Up to 1,000 data points can be defined for use by built-in and custom applications.
- Programmatic SOAP/XML interface for remote application access to all applications.

Windows PC Applications

- Rapid site deployment lets you quickly replicate and deploy a site design and configuration to a new site.
- Remote upgradability lets you easily update multiple remote sites to new SmartServer versions.
- Remote backup and restore features help you easily recover from hardware failures.

- Data log historian automatically receives and extracts data logs from multiple sites.
- LNS SOAP interface for seamless synchronization between a SmartServer and an LNS Server.

Custom Applications and Drivers

- C/C++ programming environment.
- Eclipse IDE lets you quickly and easily develop and deploy applications.
- Web page localization tool.
- Requires separate purchase of i.LON SmartServer 2.0 Programming Tools and FPM option for each SmartServer.

LONWORKS Network Installation

- Two LONWORKS network installation modes: LNS mode and Standalone mode.
- LNS mode provides seamless integration with the market-leading LNS Server, the operating system for LONWORKS networks.
- SmartServer LNS Server Editions include an LNS Server for low-cost server deployment.
- Standalone network installation mode supports up to 200 devices and ensures field personnel can get a site up and running quickly, without additional installation tools.
- Automatic device discovery and installation reduces time spent installing, replacing, and upgrading devices.
- Configure, commission, test, upgrade, and replace devices.
- Read and write any network variable or configuration property.
- Create network connections in LNS mode.
- Launch plug-ins to configure devices in LNS mode.
- Built-in RNI supports remote OpenLDV and LNS applications.
- Built-in LonScanner™ interface supports the LonScanner Protocol Analyzer.

Visualization

- Create custom displays with i.LON Vision 2.0 (no other software required).
- Built-in design elements (such as a slider, gauge, navigation tree, and menu) help you create displays quickly.
- Trend graphs for real-time and historical tracking of data point values.

- Trend graphs available on both built-in configuration pages and custom Web pages.
- Trend graphs can show both scalar and structured data such as a temperature value with an alarm condition.
- Browse built-in and custom Web pages with Internet Explorer or Firefox.

Hardware I/O

- 2 optically isolated digital inputs.
- 2 high-voltage, high-current SPST relay outputs.
- 2 SO impulse meter inputs for supervising electric, gas, and water impulse meters.
- Hardware inputs and outputs are exposed as standard data points.
- Hardware inputs and outputs can be scaled and converted to and from appropriate units.
- Hardware outputs can be triggered by network events.

IP-852 Routing

- Optional ISO/IEC 14908-4 (IP-852) routing available.
- IP-852 lets you use any IP network as a backbone for a LONWORKS network.
- IP-852 channel can include an LNS Turbo Edition Server and up to 255 i.LON SmartServers with IP-852 routing, i.LON 600 servers, third-party IP-852 routers, and LNS Turbo Edition clients.
- IP-852 channel supports thousands of packets per second for high-performance monitoring and control.
- IP-852 routing available as both a preconfigured i.LON SmartServer option and an option that can be added at any time.

Standards-based Protocols

- IP local and wide area networking protocols and Internet standards include TCP, IPv4, IPv6, PPP, CHAP, PAP, DHCP, DNS, FTP, ICMP, MD5, SMTP, SNMP, Sntp, HTTP, HTTPS, and SSL.
- Additional IP application protocols: HTML, XML, SOAP, and DIME.
- Dynamic IP addresses supported using the dynamic DNS service from DynDNS.
- NAT is supported.
- ISO/IEC 14908-1 Control Network Protocol.

- ISO/IEC 14908-2 Free Topology Twisted Pair (FT versions).
- ISO/IEC 14908-3 Power Line (PL versions).
- ISO/IEC 14908-4 Control Network IP Tunneling Protocol (optional IP-852 routing).

SPECIFICATIONS

PC Requirements

Minimum Requirements for the i.LON SmartServer 2.0

Pentium III @ 1.3GHz, 768MB RAM, DVD-ROM drive, 100MB of free disk space.

Minimum Requirements for Echelon Enterprise Services

Pentium IV @ 1.5GHz, 1GB RAM, DVD-ROM drive, 270MB of free disk space.

Minimum Requirements for the SmartServer Programming Tools

Pentium IV @ 1.5GHz, 1GB RAM, DVD-ROM drive, 250MB of free disk space.

Operating Systems

Windows Vista or Windows XP.

i.LON SmartServer Hardware

Processor

MIPS32™, 264MHz

Memory

64MB flash memory; 64MB RAM.

Channel Type

72101R-4xx and 72102R-4xx: TP/FT-10 free topology twisted pair; 72103R-4x: PL-20N or PL-20C power line.

LONWORKS Network Connector

Screw terminals.

Operating Input Voltage

100 - 240VAC (-6%/+10%), 50/60Hz.

Power Consumption

<15 watts.

Controls

Service button, Reset button.

Indicators

Power On/Wink; Ethernet link, Ethernet activity, 10/100 Mbps; LONWORKS Service, BIU (PL only), PKD (PL only), Tx, Rx; 2 digital inputs; 2 relay outputs; 2 metering inputs; Remote Network Interface connection status.

Ethernet Port

10/100BaseT, auto-selecting, auto polarity.

Ethernet Connector

RJ-45, 8 conductor.

Serial Ports

1 isolated RS-485 port; 1 EIA-232 port.

Serial Connectors

Screw terminals.

Modem

Optional V.90 internal analog modem (TP/FT-10 version only).

Modem Connector

RJ-11, 6 conductor.

Supported External Modems

ETM9300 1 3G, Janus Terminus GSM864Q, Multitech MTCBA-G-F1, Siemens 35 to 45 Series, Siemens MC55 3G, Siemens MC75 EDGE.

Console Port

EIA-232

Console Connector

DB-9

Digital Inputs

2 optically isolated dry contact inputs, 30V AC/DC.

Digital Input Connector

Screw terminals.

Relay Outputs

2 SPST relays rated at 240VAC @ 10A or 24VDC @ 10A.

Relay Output Connector

Screw terminals.

Impulse Meter Inputs

DIN 43 864 (open terminal voltage ≤12VDC max; max current ≤ 27mA).

Impulse Meter Input Connector

Screw terminals.

Operating Temperature

FT Models: 0 to +50°C; PL Models: -40 to +60°C

Non-operating Temperature

FT Models: -40 to +85°C; PL Models: -40 to +85°C

Operating Humidity (non-condensing)

FT Models: 10 to 90% RH @ 50°C; PL Models: 10 to 90% RH @ 60°C

Non-operating Humidity

(non-condensing)

FT Models: 5 to 90% RH max @ 50°C;
PL Models: 5 to 90% RH max @ 60°C

Dimensions

3.51 in. (H) x 5.47 in. (W) x 2.60 in. (D);
8TE DIN, 8.9 cm (H) x 13.8 cm (W) x 6.6 cm (D)

EMC

FCC Part 15 Class B, EN55022 Class B, EN55024, CISPR 22 Class B, VCCI Class B.

Agency Listings

UL 60950, cUL C22.2 No. 60950-00, TÜV EN60950, CE, C-Tick.

Mounting

DIN, Enclosure 8TE.

DOCUMENTATION

Echelon Enterprise Services 2.0

User's Guide

078-0423-01

i.LON SmartServer 2.0 User's Guide

078-0345-01

i.LON SmartServer 2.0 Hardware Guide

078-0346-01

i.LON SmartServer 2.0 Programmer's

Reference

078-0347-01

i.LON SmartServer 2.0 Power Line

Repeating Network Management Guide

078-0348-01

i.LON SmartServer 2.0 Freely

Programmable User's Guide

078-0349-01

i.LON Vision 2.0 User's Guide

078-0422-01

IP-852 Channel User's Guide

078-0312-01

Rapid Deployment Example for EES

078-0426-01

ORDERING INFORMATION

i.LON SmartServer 2.0 FT
72101R-430

i.LON SmartServer 2.0 FT with
Programmability
72101R-439

i.LON SmartServer 2.0 FT with IP-852
Routing and Programmability
72101R-440

i.LON SmartServer 2.0 FT LNS
Server Edition
72101R-445

i.LON SmartServer 2.0 FT with Modem
72102R-430

i.LON SmartServer 2.0 FT with Modem,
IP-852 Routing, and Programmability
72102R-440

i.LON SmartServer 2.0 PL
72103R-430

i.LON SmartServer 2.0 PL with
Programmability
72103R-439

i.LON SmartServer 2.0 PL LNS
Server Edition
72103R-445

i.LON SmartServer 2.0 PL with
External Coupling
72103R-450

i.LON SmartServer 2.0 Programming
Tools DVD
72111-439

i.LON SmartServer IP-852 Router
Activation Key
72160

i.LON SmartServer Programmability
Activation Key
72161