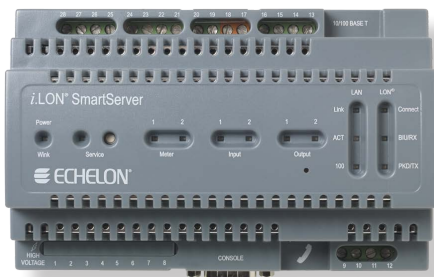# ECHELON®

SmartServer 2.0 FT
The Smart Way to Save Energy
and Reduce Operating Costs

The SmartServer is a versatile controller, router, and smart energy manager that connects control devices to IP-based applications such as building automation, enterprise energy management, demand response programs, and high-value remote asset management programs.

The SmartServer not only allows you to access, control, and monitor smart 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 LON, SOAP/XML Web services, 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

Building Energy Management

• Templates provide easy connection to a wide variety of energy meters so that the SmartServer can be used as a robust, highly reliable, and low-cost solution for monitoring energy usage from multiple energy meters.

User Interfaces

• Built-in Web pages for setup, network installation commissioning, scheduling, alarming, data logging, and network integration.

• The included i.LON Vision Web Authoring Tool lets you create custom Web pages quickly and easily; or you can create custom Web pages by editing simple Web page mark-up with any standard Web authoring tool.

• 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.

- Remote Network Interface (RNI) for local or remote connection to IzoT Net Server, OpenLNS, LNS® or OpenLDV™ applications including the IzoT Commissioning Tool, OpenLNS Commissioning Tool, and 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.

- SmartServer API for custom apps

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 ISO/IEC 14908-1 (LON FT) with built-in LON FT 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 Apps

- 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 2,000 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 Computer Apps

- 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 IzoT Net Server, OpenLNS Server, or LNS Server.

Custom Apps

- Support for custom apps included with the Professional Editions and is available as an option for the Standard Edition.

- C/C++ programming environment.

- Eclipse IDE lets you quickly and easily develop and deploy SmartServer apps.

- Web page localization tool.

- Requires separate purchase of SmartServer 2.0 Programming Tools to develop custom apps.

LON Network Installation

- Two LON network installation modes: LNS mode and Standalone mode.

- LNS mode provides seamless integration with the market-leading IzoT Net Server, OpenLNS Server, and LNS Server, the standard network operating system for LON networks.

- LNS mode works with IzoT Net and LNS tools such as the IzoT Commissioning Tool, OpenLNS Commissioning Tool, and LonMaker Integration Tool; standalone IzoT Net Server is available if an IzoT Net or LNS tool is not available.

- Standalone network installation mode supports up to 300 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, IzoT Net, OpenLNS, and LNS applications.

- Built-in LonScanner™ interface supports the LonScanner Protocol Analyzer.

Visualization

- Create custom displays with i.LON Vision (no other software required); or use the Web authoring tool of your choice.

- 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 S0 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

- ISO/IEC 14908-4 (IP-852) routing included with the Professional Editions, and available as an option for the Standard Edition.
- IP-852 lets you use any IP network as a backbone for a LON network.
- IP-852 channel can include an IzoT Net Server, OpenLNS Server, or LNS Turbo Edition Server and up to 255 SmartServers with IP-852 routing, i.LON 600 servers, third-party IP-852 routers, and IzoT Net or LNS Turbo Edition clients.
- IP-852 channel supports thousands of packets per second for high-performance monitoring and control.

Standards-based Protocols

- IP local and wide area networking protocols and Internet standards include TCP, IPv4, IPv6, PPP, CHAP, PAP, DHCP, DNS, FTP, ICMP, HMAC, MD5, SMTP, SNMP, SNTP, HTTP, HTTPS, TLS, 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.
- ISO/IEC 14908-4 Control Network IP Tunneling Protocol (optional IP-852 routing).

Specifications

EES Computer Requirements

Hardware Requirements

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

Operating Systems

64-bit and 32-bit versions of Windows 10, Windows 8.1, Windows 8, and Windows 7, and 32-bit versions of Windows XP.

SmartServer Hardware

Processor

MIPS32™, 264MHz

Memory 64MB flash memory; 64MB RAM.

Channel Type

TP/FT-10 free topology twisted pair.

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; LON Service, Tx, Rx; 2 digital inputs; 2 relay outputs; 2 metering inputs; Remote Network Interface (RNI) 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 (Model 72012R-440).

Modem Connector

RJ-11, 6 conductor.

Supported External Modems

Cinterion MC75, Cinterion MC63i, ETM93001 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

0 to +50°C

Non-operating Temperature

-40 to +85°C

Operating Humidity (non-condensing)

10 to 90% RH @ 50°C;

Non-operating Humidity (non-condensing)

5 to 90% RH max @ 50°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

SmartServer 2.0 User's Guide

078-0345-01

SmartServer 2.0 Hardware Guide

078-0346-01

iSmartServer 2.0 Programmer's Reference

078-0347-01

SmartServer 2.0 Programming Tool 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

SmartServer 2.0 FT Standard SR2
72101R-430

SmartServer 2.0 FT Professional SR2
72101R-440

SmartServer 2.0 FT Professional with Modem SR2
72102R-440

SmartServer 2.0 SR2 Software License
72110-440

SmartServer 2.0 Programming Tools DVD
72111-439

SmartServer IP-852 Router Activation Key
72160

SmartServer Programmability Activation Key
72161