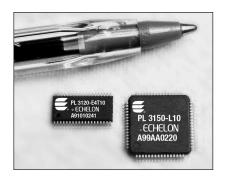
ECHELON

ISI Developer's Kit Model 23500



Description

The ISI Developer's Kit is a library for Neuron[®] C that supports development of devices that can be installed in networks without the use of a network management server or tool. Devices developed with the ISI Developer's Kit communicate using the LONWORKS[®] Interoperable Self-installation (ISI) Protocol. This protocol leverages LONMARK standards to enable ISI devices from different manufacturers to interoperate. Devices offer connections with LONMARK information including functional profile, member ID, and SNVT ID.

Networks can start out as self-installed networks using ISI and, as size or complexity grows beyond the ISI limits, can be upgraded into a managed network. For example, a selfinstalled network may also be transitioned to a managed network to add non-ISI devices or to take advantage of the additional flexibility and capability provided by a network management tool and server. When the network is transitioned, the network management tool can automatically recover all the installed devices in the network as well as all the connections created in the network—saving the effort of installing the devices a second time.

The ISI protocol supports logical isolation of different networks that may be within earshot of each other. For example, devices in adjacent apartments are typically installed into separate networks to prevent interference between the apartments. To provide this type of isolation, the ISI protocol defines a simple domain address server that can be used to assign and distribute a unique domain identifier for all the devices in a network. In the case of adjacent apartments, each apartment will have its own domain address server. When a new device is installed in a network with a domain address server, a simple push-press-and-play push button sequence is followed to assign the device to the correct domain. The ISI protocol ensures that a new device is not mistakenly assigned to a neighbor's network.

- Enables devices to be developed that do not require installation tools
- Supports plug-and-play and plug-press-and-play device installation
- Provides an ideal installation solution for home automation applications
- Leverages LONMARK standards for interoperable device operation—expanding the market for self-installed devices
- Supports logical isolation of power line networks using an optional domain address server
- ▼ Supports up to 32 devices for simple networks, or up to 200 devices with a simple domain address server
- ▼ Requires minimal, deterministic, network overhead
- Enables self-installed networks to be transitioned to a managed network using an LNS[®] based tool
- No royalties when used with Echelon's power line, free topology, and link power transceivers

The ISI protocol introduces a small, tightly-controlled, deterministic, number of status messages to maintain the selfinstalled network. The network overhead is controlled on the entire media. For example, if two adjacent apartments use two logically isolated power line networks on the same physically connected power line, each of the two networks adjusts the network maintenance packet rate to the total number of devices in earshot.

The ISI protocol uses a patent-pending fire-and-forget protocol to assign network resources such as network addresses and connection identifiers. This protocol detects and repairs any resource conflicts, without requiring all devices in a network to be on all the time and without requiring the use of a central server to maintain resource information.

The ISI protocol supports most common types of connections, including one-to-one, one-to-many, many-to-one, and many-to-many. Every ISI device may support multiple connections per device. Connections may be fully automatic. For example, an appliance application may automatically connect to a gateway application. Alternatively, connections may be manual. For example, a group of switches may be manually connected to a group of lights by pressing a button on each of the switches and lights to be connected.

Contents

The ISI Developer's Kit includes the following components:

- A full version of the ISI library—this version implements all ISI functionality, and is suitable for applications developed for 3150[®] chips
- ▼ Two smaller versions of the ISI library—one that supports only automatic connections and one that supports only manual connections. The small versions are both suitable for applications developed for 3120[®] chips. These versions leave approximately 1 KByte for the application on a 3120 chip with 4 Kbytes on-chip flash.
- Documentation for the ISI library and the ISI protocol, including example Neuron C code that demonstrates how the ISI library can be used to create self-installed applications.

Usage

The ISI library included with the ISI Developer's Kit implements most of the ISI protocol, simplifying development of Neuron C applications for ISI devices. To use the library, NodeBuilder[®] and Mini EVK developers link to the ISI library and specify the types of connections to be offered and accepted by the device, and define the actions used to initiate connections.

Specifications

aluation Kit, or newer.
a simple domain
n other, including
50800 (200*254)
n the next matching
n

Documentation

The following documentation is included with the ISI Developer's Kit. The documentation provides an overview of the development of ISI applications, and describes the ISI protocol.

Document	Echelon Part Number
ISI Programmer's Guide	078-0299-01
ISI Protocol Specification	078-0300-01

Ordering Information

The ISI Developer's Kit is available for free download from www.echelon.com/isi. A free introduction to ISI training course is available as part of Echelon's eTraining courses. See www.echelon.com/training for more information. Other support and training options are available. Contact your local Echelon representative or distributor for details.

The ISI protocol is a licensed protocol. The ISI Developer's Kit and Mini EVK Evaluation Kit both include a royalty-free license for development use of the ISI library with Echelon transceivers for the TP/FT-10 and PL-20 channels. By signing a Revision J or newer OEM License Agreement, manufacturers can acquire a royalty-free license to produce devices incorporating the ISI library and using these transceivers.

Product	Echelon Model Number
ISI Developer's Kit	23500

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