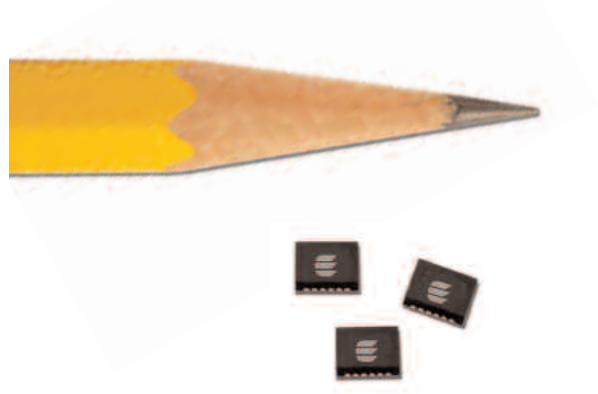




## The Pyxos™ FT Embedded Control Networking Platform



**Control Made Easy**

## Put the Power of Control Networks Inside Machines with Pyxos Technology

Whether you're a product manufacturer or end user, Echelon's Pyxos FT Embedded Control Networking Platform gives you what you need to succeed: It extends the power of LONWORKS® control networks to the smallest devices, even the sensors and actuators inside machines.

The Pyxos platform is ideal for networking components inside machines. Built upon tiny, low-cost Pyxos FT integrated circuits, it automatically configures itself into a high-speed control network—without special tools or skilled labor. With support for both wired and wireless implementations, it's the right engineering choice for today's applications and tomorrow's wireless needs.

The Pyxos platform is the only sensor networking solution that's designed to be part of a complete control ecosystem. It works seamlessly with LONWORKS control networks, letting manufacturers easily connect their products to existing automation applications for remote monitoring and control. Together, LONWORKS and Pyxos networks create a synergistic system, with LONWORKS networks providing the ultra-reliable backbone for any number of Pyxos based machines and sensor networks.



A Pyxos network inside a machine.

### Pyxos Embedded Control Networks:

- Reduce assembly costs and time due to their self-organizing nature
- Reduce assembly and warranty costs by replacing troublesome wire harnesses with two-wire networks
- Enable new features by letting you access low-level data from sensors and actuators, such as data on process efficiency and energy use
- Reduce life-cycle costs by letting you diagnose machines locally or over the Internet
- Improve customer service through preventive and predictive maintenance
- Provide a long-term technical investment through built-in media independence
- Improve performance in even the most demanding applications via deterministic signaling



A Pyxos network in a control network.

## High-Performance Industrial Solutions

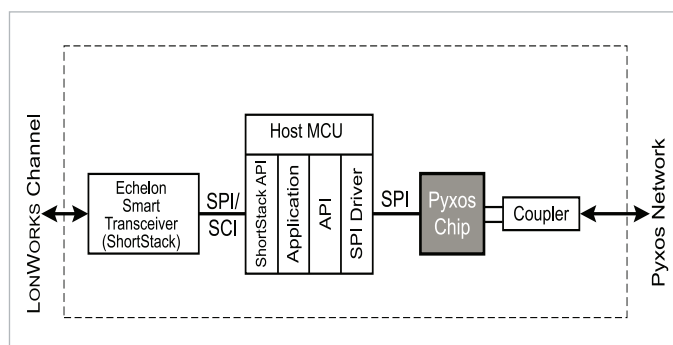
Pyxos networks are perfect for high-performance applications: They support data bit rates up to 312.5 kbps and use deterministic signaling to scan all data points at least every 25 ms. High-speed signaling and flexible data types allow you to use Pyxos FT networks for closed-loop controls in process and industrial applications, as well as in vehicular controls, fault monitors, propulsion controls, elevator cab and floor call controls, security and fire/life safety devices, burner and boiler controls, lighting systems, HVAC systems, and office automation equipment.

## Low-Cost Assembly and Installation

Pyxos FT supports three easy installation methods:

- **Automatic:** self-organizes without any user intervention
- **Hard-wired:** for applications that need a specific installation sequence
- **Push-button:** lets you install devices by simply pushing a button

This flexibility lets you cost-effectively install devices without needing to re-train employees, installers, or service personnel.



Networked Pyxos Pilot

## Pyxos Hardware

Pyxos Points are embedded in sensors, actuators, and displays, from which they gather and distribute control data. Pyxos Pilots collect and send this data to local host processors, LONWORKS control networks, programmable logic controllers, and the Internet. Pyxos Pilots also receive commands from these sources and use them to control the Pyxos Points.

Echelon and LONMARK® International have together defined a rich set of standard data types for control systems, allowing the open exchange of data among smart devices. The Pyxos FT platform uses this interoperability model, leveraging over a decade of work by more than 300 industry-leading controls companies, to ensure an open market for embedded control networks.

Pyxos networks include the following features from the LONWORKS control platform:

- **Free Topology wiring.** Manufacturers or installers can wire Pyxos networks in a bus, star, loop, daisy chain, or any other topology they choose, with a single twisted-pair cable.
- **Polarity-insensitive connections.** There's no need to match wire and connector polarity, which eases installation and reduces common wiring errors.
- **Link power.** This eliminates local power sources and wiring for devices requiring up to 100 mA.

## The Pyxos and LONWORKS Platforms: A Complete Control Ecosystem

Combining Pyxos and LONWORKS networks provides greater benefits than either technology can on its own: Where LONWORKS networks connect machines to create control and monitoring applications, Pyxos networks can reside inside those machines, extending the reach of LONWORKS applications to the smallest sensor or actuator. This increases the power of the LONWORKS network and gives end users more detailed and accurate monitoring, service, and control. Through the LONWORKS network, Pyxos enabled machines increase in value, extend control applications, and connect to the Internet for remote monitoring and control.

Pyxos and LONWORKS networks use the same data types, making integration seamless. And because you can use LONWORKS network tools to manage and control LONWORKS enabled Pyxos Pilots, connecting to Pyxos networks is easy and affordable.

## What is a LONWORKS Control Network?

A LONWORKS control network is a set of electronic devices that interact to sense, monitor, or control an action. The action can be as simple as operating a valve or as complex as monitoring and controlling a city's street lighting system.

Although there are other control networks, only a LONWORKS control network:

- adds intelligence to each device on the network,
- becomes more powerful as more devices are added to it, and
- is accepted as a standard platform in many industries around the world.

Because each device on a LONWORKS network contains control capabilities, applications for energy or environmental management become more powerful with every newly added device. No other control network makes it so easy to increase the power of an application.

Created in 1990, the LONWORKS platform is the world's most popular control networking technology, with more than 60 million LONWORKS devices

installed. An open and proven standard, it's included in the ANSI/CEA-709, CEN 14908, IEEE 1473-L, SEMI E-54.16, AAR, and GB/Z 20177 standards.

LONWORKS devices can send control-related information directly to each other, or through the Internet—between floors of a building, across a campus, or to a remote monitoring center, for example. Information is exchanged in a standardized way, both in terms of the physical medium (such as twisted-pair wire, power line, radio, infrared, or fiber optics) and the contents of the message (such as speed, voltage, direction, temperature, and humidity). LONWORKS devices from different manufacturers can directly exchange messages on a peer-to-peer basis, without needing a gateway to translate data between them.

Since the LONWORKS platform is interoperable, LONWORKS based devices simply work together—eliminating the need for proprietary or custom solutions. Engineers can focus on one common solution, using one development tool chain, based on one common architecture. The potential cost reduction in R&D, training, support, and labor is enormous.

## Exceptional. Affordable. Echelon.

Learn more about how the Pyxos FT Embedded Control Networking Platform can help you succeed. Contact your local Echelon sales office or distributor, or visit [www.echelon.com/pyxos](http://www.echelon.com/pyxos).

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