

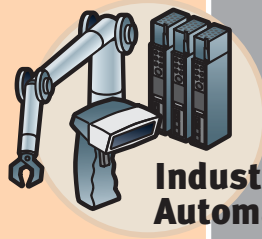
“Sensing” a Need, Sensors Gain Internet Connectivity

“We selected the Lantronix Micro100 because it offered an integrated solution that was fully compatible with our NEEM product. Utilizing Lantronix technology, we are now able to connect sensors to the Internet without the burden of customizing and integrating a TCP/IP stack into our smart sensor interface technology.”

**— JAMES WICZER,
PRESIDENT
SENSOR
SYNERGY, INC.**



WHETHER SENSORS ARE STAND-ALONE, connected to PLCs, interfaced to PCs or tied directly to networks, these devices can be found in a multitude of electronics that affect daily life – from washing machines to windshield wiper blades. Although there are a number of ways to add sensor data to a system, designers and users want to keep the sensor-to-system interface process as easy as possible, and, in many cases, users want this information to be accessible via the Internet.



Industrial Automation

CHALLENGE A multitude of industry sensor protocols cause a nightmare for manufacturers that need to ensure their products can correctly communicate with their customer’s existing hardware and software interfaces.

SOLUTION Sensor Synergy and Lantronix combined forces to develop state-of-the-art sensor interfaces that include advanced embedded device server technology to enhance compatibility with end users’ existing equipment infrastructure.

BENEFIT Highly integrated networking technology from Lantronix accelerated and simplified Sensor Synergy’s design time while providing end-users Internet connectivity and ease-of-use.

THE SITUATION: SEAMLESSLY CONNECT SENSORS TO THE INTERNET

Sensor Synergy, Inc. is committed to helping the industry simplify the task of connecting sensors and actuators to the Internet and local networks. Many manufacturing and commercial enterprises have identified communication barriers within their organization that can ultimately be traced back to the lack of sensor connectivity or incompatible interfaces. In order to facilitate the process, Sensor Synergy has developed unique software and hardware tools to implement low-cost sensor-to-Internet interfaces. These products can

be used for monitoring and control of industrial processes, environmental control or other monitoring applications through standard web browsers or other web-based tools.

In recent years, the IEEE’s (Institute of Electrical and Electronics Engineering) approval of multiple standards, coupled with the increase of factory automation suppliers differentiating themselves by developing different communications protocols, has resulted in over





50 different hardware and software interface protocols. What initially was an opportunity for factory automation suppliers to provide enhanced new features to their customers has become a challenge for sensor manufacturers. It is increasingly difficult to develop sensor solutions that will interface with all applicable protocols. To help alleviate this problem, smart sensor technology pioneer, Sensor Synergy, developed a near-universal sensor-to-Internet solution utilizing Lantronix Device Networking technologies.

The Solution: SENSOR TECHNOLOGY WITH INTERNET CONNECTIVITY SOLVES COMPATIBILITY ISSUES

Solving this industry dilemma, Sensor Synergy developed its NEEM unit. It includes several state-of-the-art hardware and software technologies such as the latest mixed-signal microcontroller technologies, high-resolution analog-to-digital converters, networking protocols, IEEE smart sensor interface technologies and a micro-web server using Lantronix Device Server™ technology. Sensor Synergy's NEEM uses patented interface technology to transform conventional sensors into "smart sensor like devices."

Making the process of adding Ethernet connectivity faster and more economical, Sensor Synergy employed the Lantronix Micro Device Server. The Micro100 gives OEMs the ability to embed proven mainstream Ethernet connectivity by enabling most any device with a serial (UART) interface (TTL) to connect to Ethernet networks.

Lantronix device networking products provide all of the elements needed for network connectivity – a processor, real-time operating system (RTOS), a robust TCP/IP stack, a web server and a network connection. By utilizing the compact Micro100, a fully integrated device networking solution, Sensor Synergy was able to concentrate on its core competency of connecting sensors and actuators to the Internet and local networks. Utilizing an off-the-shelf solution also helped Sensor Synergy speed its time to market and lower its development costs.

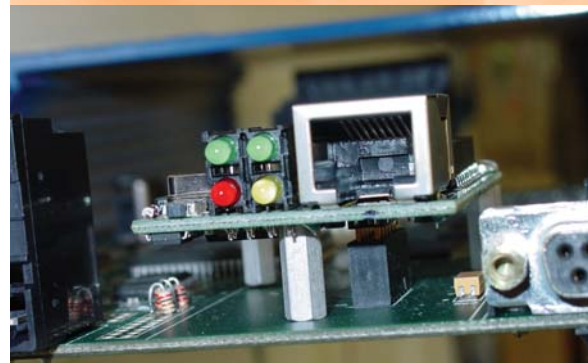
The Result: A FULLY NETWORKED SENSOR INTERFACE SOLUTION... NO CUSTOM PROGRAMMING REQUIRED!

The Micro100 provides Sensor Synergy's NEEM application with command line interface capabilities that allow for the storage of web pages, the use of special tunnel features, and the creation of customizable end-user interface software. To top it off, the microweb server feature of this solution requires no software maintenance fees or custom programming since it can directly serve HTML and Java files to networks without the assistance of PCs or other central service computer systems. An additional benefit is that Lantronix technologies offer flexibility in network connectivity. This frees up the systems supplier to concentrate on its core business while creating a product that is easy for the end-user to use.

The Micro100 Advantage



- **MINIMAL NETWORK ENGINEERING REQUIRED** – With very little effort, minimal development resources and in a fraction of the time required to develop an in-house solution, OEMs can add full Ethernet connectivity to their products allowing them to be managed over a network or the Internet.
- **COMPACT SIZE** – Measuring only 1.6 inches x 1.9 inches, the Micro100 can easily fit into almost any serial device that would benefit from network connectivity.
- **FLEXIBILITY** – Manufacturers can offer products with or without Ethernet networking capabilities simply by adding or removing the board.
- **SEAMLESS TRANSITION TO WIRELESS** – With the same pinout, manufacturers can easily offer products with either Ethernet and/or 802.11 b/g wireless by simply replacing the Micro100 with the Lantronix WiMicro™.
- **CUSTOM PROTOCOL SUPPORT AVAILABLE**



*The Micro100
integrated into
the Sensor
Synergy unit.*

LANTRONIX®

Network anything. Network everything.

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