



Spectrum24[®] Wireless LAN

High Performance Wireless LAN Technology
for Today and Tomorrow



Spectrum24®: A Commitment to Open Standards

Spectrum24, Symbol's high performance wireless LAN offers a commitment to open standards with easy installation, high throughput, expandable capacity and superior interference immunity. It's ideal for applications where mobility and real-time data access are essential.

Spectrum24 is a frequency hopping spread spectrum cellular network designed to operate within the 2.4 to 2.5 GHz bands around the world. This modulation technique provides a high-capacity scalable network by using multiple access points within large or small environments.

Easy to Install; Easy to Use

Spectrum24 Access Points strategically located in your facility create a wireless Ethernet bridge between your host computer network and any number of communications devices equipped with Symbol Spectrum24 Wireless LAN PC Cards. Because it's designed to comply with the IEEE 802.11 international standard for wireless LAN airwave communications, Spectrum24 integrates seamlessly with your hardware platforms, operating systems, and application software.

Computing devices equipped with a standard PCMCIA Type II or ISA expansion slot can communicate on the Spectrum24 wireless LAN. Simply install the one-piece Spectrum24 Wireless LAN PC Card (with optional integrated antenna) into the computing devices of your choice.

Spectrum24 PC Cards are fully compatible with most laptop and pen-based computers, plus a wide variety of hand-held computers, portable data terminals with integrated scanners and other devices.

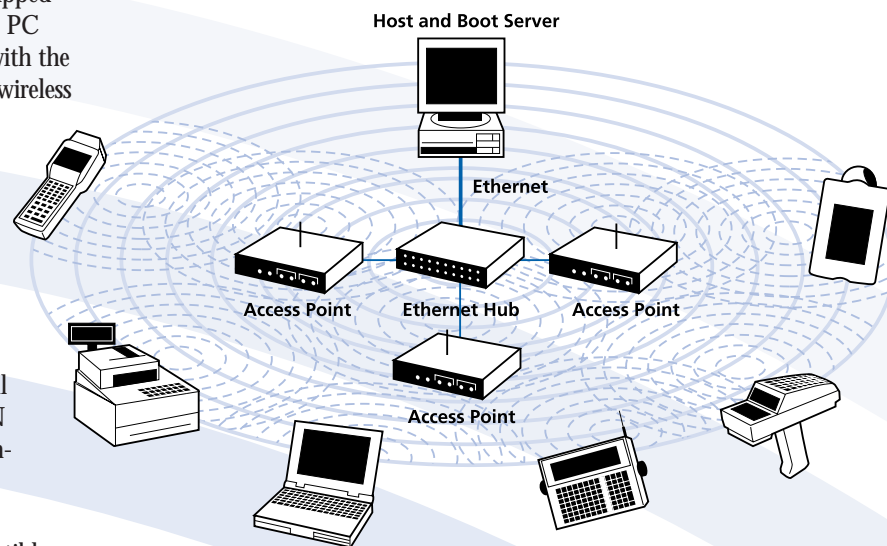
Modular Architecture: High Capacity Throughput

Spectrum24 allows scalable data transmission approaching full Ethernet bandwidth of 10 Mbps. This provides optimum communication support and seamless roaming capability for any combination of fixed or mobile computing devices.

Spectrum24's modular cellular architecture allows you to configure a wireless LAN network of any size or capacity - with unlimited potential for expansion. Designed for total applications flexibility, Spectrum24 lets you configure a system that's perfect for your needs today, while giving you total freedom to expand or reconfigure your system to meet tomorrow's changing communications needs. It all adds up to a smart investment in a wireless communications system that protects and leverages the value of your existing systems and applications, while working to improve productivity and streamline data management in every area of your organization.

Symbol: Proven Expertise

Symbol introduced the first commercially available spread spectrum network in 1990, and our proven experience and applications expertise makes us today's leader with more than 20,000 wireless data networks installed worldwide.



Spectrum24®: High-Performance, Wireless LAN Technology for Today and Tomorrow.

**NOW WITH
WIRELESS
BRIDGING
AND
REPEATING!**



The Spectrum24 wireless LAN consists of hardware and software components that integrate seamlessly with wired environments. A complete solution, Spectrum24 includes access points, connectivity software, LAN adapters and management tools.

One-piece PCMCIA and Industry Standard Architecture bus cards install in terminals, laptops, point-of-sale and other devices for quick, easy and seamless connection to the Spectrum24 wireless LAN.

AP 2410 Ethernet Access Point Series

Transparent Connection Between Wired Networks and Spectrum24 Wireless LAN

Symbol Technologies' AP 2410 Ethernet Access Point is designed to provide transparent access between Symbol wireless terminals and network appliances, third party devices equipped with a Symbol Spectrum24 PC Card, and Ethernet wired networks. Designed for high levels of performance and speed, the AP 2410 allows the mobile user to roam freely throughout a facility while maintaining a continuous, seamless connection to the wired network.

A wireless option allows you to implement wireless repeating and bridging of campuses and work groups, expand coverage, or establish a standalone wireless network without the need to be wired to your Ethernet backbone.

The AP 2410 comes with full documentation, power supply and a standard antenna, as well as a range of popular features for superior performance in today's networking environments:

- ▶ High performance/high speed
- ▶ Support for wireless repeating and bridging operation
- ▶ Built in diagnostics
- ▶ MAC layer bridge to Ethernet
- ▶ Protocol software upgrade via Flash memory
- ▶ Slim, low-profile design
- ▶ SNMP agent
- ▶ Instantaneous handoffs

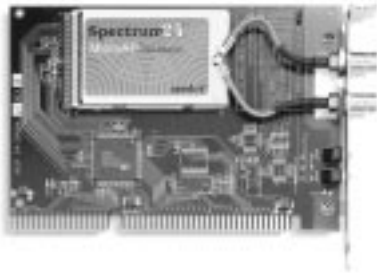
Software Configurable

The AP 2410 is software configurable. A key feature, auto-configuration mode, allows the access point to automatically select certain operating parameters including network ID, hopping sequence and scrambling code. This eliminates the need to explicitly configure the system in many environments. Other methods include using Symbol-provided Wireless LAN Management Tools. Virtually all parameters can be configured ranging from various WLAN timer values to the maximum length of the Ethernet transmit queue.

Diagnostic Capabilities Included

The AP 2410 also features diagnostic capabilities, including:

- ▶ Collection of operating statistics and counters during normal operation.
- ▶ Specification of counter thresholds with the option of SNMP alarm generation.
- ▶ Tracing of packets moving between any two interfaces.
- ▶ Extensive event logging of significant terminal events.



Micro Access Point PC Card Series

The Wireless LAN Solution on a PC Card

Symbol Technologies' Micro Access Point (MicroAP) PC Cards quickly and easily turn any PC-compatible device, such as a cash register, laptop or hand-held computer into a Spectrum24 wireless local area network host. Simply insert a MicroAP card and install the driver software. The MicroAP provides transparent connectivity for up to 16 wireless portable or stationary units in environments up to 40,000 square feet/3,700 square meters.

The Versatile, Economical Wireless Solution

In convenience stores and smaller retail shops, garden centers and service stations, as well as warehouse and manufacturing locations, the MicroAP creates a cost-effective smaller-scale WLAN for real-time data access without the need for an Ethernet or wired connection. The MicroAP extends your enterprise-wide network by bridging mobile units to a wireless wide area network - keeping the hand-held computers of public safety, transportation and other personnel in communication with your base station.

What's more, MicroAPs can operate as separate networks in the same site without interference, enabling you to create wireless work groups and departments, indoors and out.

MicroAPs feature:

- ▶ Standard Network Driver Interface Specification (NDIS) and Open Data-Link Interface (ODI) Drivers for DOS and Microsoft Windows ensure integration with host systems.
- ▶ Continuous Aware Mode (CAM) for faster response, CAM keeps the MicroAP on during device operation.
- ▶ Power Save Polling (PSP) Support - enables the MicroAP to function in a sleep mode, switching on and off to receive and send messages, saving valuable battery power.

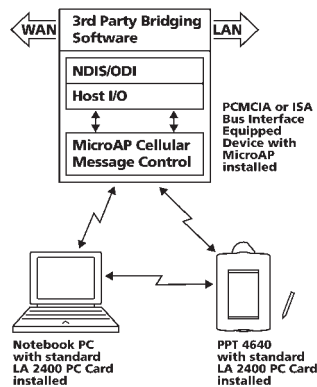
And because the MicroAP draws its power from the portable unit, there's no need for a separate power supply.

Commitment to Open Standards; Compact Design

All three compact, single-piece MicroAP cards are designed to comply with the IEEE 802.11 standard for wireless LAN airwave communications, bringing ease and convenience to your WLAN solution:

- ▶ *MicroAP PC Card* inserts in a standard Type II PC Card slot and connects to the host device's internal or external antenna.
- ▶ *MicroAP with End-Cap Antenna* is a Type II PC Card designed for laptop computers and other devices that don't have an antenna.
- ▶ *MicroAP ISA Adapter* is for desktop PCs and PC-compatible point-of-sale devices; It requires connection to the host device's internal or external antenna.

Peer-to-peer Communication with the MicroAP



LA 2470 ISA Wireless LAN Adapter

Flexible Connectivity to Spectrum24 Wireless LAN

Symbol Technologies' LA 2400 ISA Wireless LAN Adapter is an ideal solution for users requiring network connectivity and flexibility to rearrange locations of ISA bus workstations - wirelessly and without interruption.

The LA 2470 easily installs in your desktop PCs and PC-compatible point-of-sale systems with ISA bus interfaces. Once installed, it quickly and accurately configures and connects to the Symbol Spectrum24 Wireless LAN. As you rearrange your LAN workstations, the LA2470 reconfigures and reconnects to deliver uninterrupted network connectivity. So as you move your PCs and other devices, you get continuous connectivity and continuous productivity to run your network applications.

Ideal for Multiple Applications

With the LA 2470, you can easily accommodate temporary seasonal and capacity-driven activities that require changing your network layout, including:

- ▶ Manufacturing workstations where production line layouts are frequently changed.
- ▶ Retail point-of-sale stations to accommodate new floor plans for remerchandising, sidewalk sales, and seasonal and promotional activities.
- ▶ Kiosks in malls, airports, museums and other environments where interactive programs depend on high-speed remote data retrieval.
- ▶ Wireless network PCs in environments where wiring isn't possible, such as landmark buildings or sites with asbestos considerations.

Fast and Compact

The LA 2470 includes industry standard ODI and NDIS drivers to reduce programming time, as well as full documentation for fast integration. Measuring just over 6" L x 4" W x .5" H/16.2cm L x 10.2cm W x 1.3cm H, the LA 2470's semi-slot form factor easily fits cash registers and other PC-compatible devices having limited space.



LA 2400 Wireless LAN PC Card Series

High-Performance Low Power Connectivity Between Spectrum24 Wireless LAN and Mobile Devices

Symbol Technologies' LA 2400 Wireless LAN PC Card lets mobile users easily configure and connect to the Spectrum24 wireless LAN form PC card-equipped host systems. The LA2400 is designed for high-level performance, but makes low power demands on host systems.

The LA 2400 includes the features users want for today's networking environments:

- ▶ High throughput/High network capacity
- ▶ Very low power consumption
- ▶ Seamless roaming
- ▶ Protocol software upgrade via Flash memory
- ▶ Standard ODI and NDIS drivers provided
- ▶ One-piece PC Card design
- ▶ Ridged or external antenna options

With the LA 2400, users have full roaming mobility within a facility while staying connected to their LAN. In addition to standard industry drivers, the LA 2400 includes full documentation to speed integration.



EB 2401 Ethernet Access Bridge (EAB)

Wireless network interface for Ethernet devices

Symbol Technologies' EB 2401 Ethernet Access Bridge provides a wireless network interface to a Spectrum24 wireless LAN for Ethernet-enabled devices. The Ethernet Access Bridge consists of a Spectrum24 wireless LAN adapter and an Ethernet software interface. A variety of devices with Ethernet ports can use the Ethernet Access Bridge to connect wirelessly to a Spectrum24 wireless LAN.

These devices include:

- ▶ Printers
- ▶ Scales
- ▶ Portable computers
- ▶ Bar code readers
- ▶ Time clocks
- ▶ Data collection devices
- ▶ Medical equipment
- ▶ Point-of-sale devices

The Ethernet Access Bridge is a Plug and Play unit, which can be configured in two ways. First, it can be used to wirelessly connect an Ethernet device to a Spectrum24 wireless LAN. Second, it can be configured as a MicroAP and provide transparent connectivity to a Spectrum24 Wireless LAN for up to 16 wireless portable or fixed units.



SB 2401 Serial Client Bridge (SCB)

Wireless network interface for serial devices

Symbol Technologies' SB 2401 Serial Client Bridge provides an interface between serial (RS-232) devices and a Spectrum24 wireless LAN. Many types of devices with serial ports can achieve wireless connectivity to a Spectrum24 wireless LAN by attaching a Serial Client Bridge.

These devices include:

- ▶ Printers
- ▶ Scales
- ▶ Portable computers
- ▶ Time clocks
- ▶ Data collection devices
- ▶ Medical equipment

The Serial Client Bridge is easily configured to fit application requirements. User configurable settings include:

- ▶ Serial data transfer rates between 112.5 and 115,200 bits per second
- ▶ Serial port modes - stream and frame
- ▶ Network protocols - TCP/IP and UDP/IP
- ▶ Network service protocols - Telnet, LPD and Raw
- ▶ Network ID and IP addresses

All configuration information is saved in non-volatile Flash memory.

The use of TCP provides a reliable transport mechanism for serial communication over the Spectrum24 Wireless LAN.

Spectrum24® Wireless LAN Specification Highlights

Radio Characteristics

Frequency Range:	2.4 to 2.5 GHz, programmable for different country regulations	
Frequency Hopping:	Number of hops: 78 in U.S. and Europe; 23 in Japan; programmable to meet regulations of other countries. Hopping rate: 10 hops/sec. (per FCC part 15.247). Hopping sequence: 66	
Data Rate:	1 Mbps per channel	
Output Power:	500 mW, 230 mW and 100 mW versions available	
Power Management:	Power Consumption: Continuous Aware Mode Sleep Mode: Less than 50 µA Receive: 500 mW = 300 mA, 100 mW = 300 mA both @ 5 V Transmit: 500 mW = 650 mA, 100 mW = 400 mA both @ 5 V	Power Saving Mode Average TX & RX: Less than 30 mA
Range:	Up to 2,000 ft./606m in open environments; up to 180 to 250 ft./54.5 to 75.7m in a typical office or retail store	
TX Maximum Radiated EIRP:	FCC regulations part 15.247 in U.S.; ETS 300 328 in Europe; RCR STD-33 in Japan	
Modulation:	Binary GFSK	
TX Out-of-Band Emissions:	FCC regulations part 15.247, 15.205, 15.209 in U.S.; ETS 300 328 in Europe; RCR STD-33 in Japan	

Network Characteristics

Driver Software Support:	ODI version 1.6, future enhancements to version 4.0; NDIS version 2.01, future enhancement to version 3.0
Access Protocol:	CSMA/CA
Roaming:	Virtually Instantaneous

Specifications are subject to change without notice.
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For system, product or services availability and specific information within your country, please contact your local Symbol Technologies office or Business Partner.



Corporate Headquarters

Symbol Technologies, Inc.
One Symbol Plaza, Holtsville, NY 11742-1300
TEL: 1-800-722-6234/1-516-738-2400
FAX: 1-516-738-5990

International Headquarters

Symbol Technologies International
Symbol Place, Winnersh Triangle
Berkshire, England RG41 5TP
TEL: 44-118-9457000/FAX: 44-118-9457500

For Africa

Symbol Technologies Africa, Inc.
Block B2
Rutherford Estate, 1 Scott Street
Waverley 209, Republic of South Africa
TEL: 27-11-4405668/FAX: 27-11-4406191

For Asia & Australia

Symbol Technologies Asia, Inc.
230 Victoria Street
#04-05 Bugis Junction Office Tower
Singapore 188024
TEL: 65-337-6588/FAX: 65-337-6488

For Canada

Symbol Technologies Canada, Inc.
2540 Matheson Boulevard East
Mississauga, Ontario, Canada L4W 4Z2
TEL: 1-905-629-7226/FAX: 1-905-629-9765

For Europe & the Middle East

Symbol Technologies International
Symbol Place, Winnersh Triangle
Berkshire, England RG41 5TP
TEL: 44-118-9457000/FAX: 44-118-9457500

For Latin America

Symbol Technologies
7900 Glades Road
Suite 340
Boca Raton, FL 33434
TEL: 1-800-347-0178/1-407-438-1275
FAX: 1-407-483-3922

Symbol World Wide Web Internet Site

For a complete list of Symbol subsidiaries and Certified Business Partners worldwide contact us at:
<http://www.symbol.com>
E-mail: info@symbol.com



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