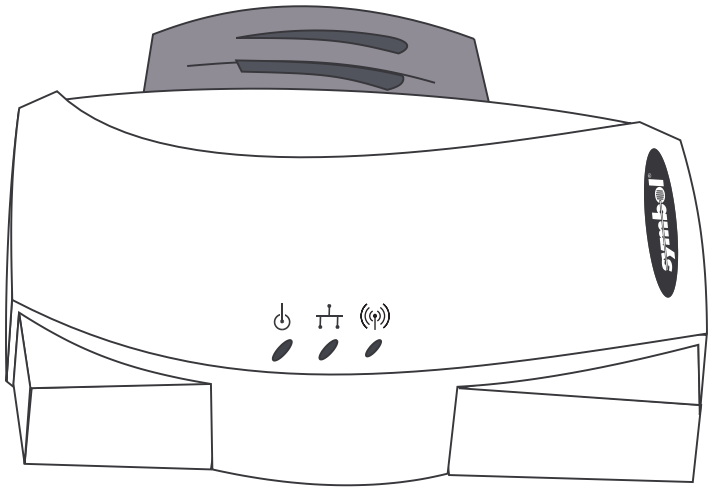
Spectrum24®

AP-4111 DS Access Point
Quick Reference Guide



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Introduction

The AP-4111 Direct Sequence access point provides a bridge between Ethernet wired LANs and Spectrum24 wireless networks. The access point provides access between Ethernet wired networks and radio-equipped mobile units (MUs). MUs include all Symbol Spectrum24 terminals, scanners, PC cards, phones, third-party devices and other equipment.

For additional installation and configuration information, go to www.symbol.com and search for the Spectrum24 AP-4111 DS Access Point Product Reference Guide.

Hardware Installation

Precautions

Before installing the AP-4111 DS access point verify the following:

- The location of the unit is dry and dust free. Install in wet or dusty areas only with additional protection. Contact a Symbol representative for more information.
- The installation environment is between -20° C and 55° C.
- AP can be installed on a different subnet if mobile IP is enabled.

Requirements

The minimum installation requirements for a single-cell, peer-to-peer network are:

- Power outlet
- Access point
- Null modem serial cable.

Note: Use and test the AP-4111 DS access point with an associated MU.

Network Connection

Locate connectors for Ethernet and power on the back of the access point.

Ethernet configurations vary according to the environment.

10Base-T UTP

Use a 10Base-T connection for multiple APs or an AP attached to a wired UTP Ethernet hub. Normal 10Base-T limitations apply.

1. Plug the data cable RJ-45 connector into the AP RJ-45 connector.
2. Plug the other end of the data cable into the LAN access port (possibly a hub or wall connection).
3. Add additional APs as needed.

Mounting the AP-4111 DS Access Point

The AP-4111 DS access point rests on a flat surface or attaches to any hard, flat, stable surface. Use the standard mounting kit provided to secure the AP-4111 DS access point.

Select an access point mounting option based on its intended operating environment.

- Resting flat

  The access point rests on four rubber pads on the underside of the AP. Place on a surface clear of debris and away from office traffic.
- Attached to the wall

  The access point attaches to a wall and can be oriented in any position.

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Patents

This product is covered by one or more of the following U.S. and foreign Patents:

U.S. Patent No.

4,360,798; 4,369,361; 4,387,297; 4,460,120; 4,496,831; 4,593,186; 4,603,262; 4,607,156; 4,652,750; 4,673,805; 4,736,095; 4,758,717; 4,816,660; 4,845,350; 4,896,026; 4,897,532; 4,923,281; 4,933,538; 4,992,717; 5,015,833; 5,017,765; 5,021,641; 5,029,183; 5,047,617; 5,103,461; 5,113,445; 5,130,520; 5,140,144; 5,142,550; 5,149,950; 5,157,687; 5,168,148; 5,168,149; 5,180,904; 5,229,591; 5,230,088; 5,235,167; 5,243,655; 5,247,162; 5,250,791; 5,250,792; 5,262,627; 5,262,628; 5,266,787; 5,278,398; 5,280,162; 5,280,163; 5,280,164; 5,280,498; 5,304,786; 5,304,788; 5,306,900; 5,321,246; 5,324,924; 5,337,361; 5,367,151; 5,373,148; 5,378,882; 5,396,053; 5,396,055; 5,399,846; 5,408,081; 5,410,139; 5,410,140; 5,412,198; 5,418,812; 5,420,411; 5,436,440; 5,444,231; 5,449,891; 5,449,893; 5,468,949; 5,471,042; 5,478,998; 5,479,000; 5,479,002; 5,479,441; 5,504,322; 5,519,577; 5,528,621; 5,532,469; 5,543,610; 5,545,889; 5,552,592; 5,578,810; 5,581,070; 5,589,679; 5,589,680; 5,608,202; 5,612,531; 5,619,028; 5,664,229; 5,668,803; 5,675,139; 5,693,929; 5,698,835; 5,705,800; 5,714,746; 5,723,851; 5,734,152; 5,734,153; 5,745,794; 5,754,587; 5,762,516; 5,763,863; 5,767,500; 5,789,728; 5,808,287; 5,811,785; 5,811,787; 5,815,811; 5,821,519; 5,821,520; 5,823,812; 5,828,050; 5,850,078; 5,861,615; 5,874,720; 5,875,415; 5,900,617; 5,902,989; 5,907,146; 5,912,450; 5,914,478; 5,917,173; 5,920,059; 5,923,025; 5,929,420; 5,945,658; 5,945,659; 5,946,194; 5,959,285; D305,885; D341,584; D344,501; D359,483; D362,453; D363,700; D363,918; D370,478; D383,124; D391,250; D405,077; D406,581; D414,171; D414,172

Invention No. 55,358; 62,539; 69,060; 69,187 (Taiwan); No. 1,601,796; 1,907,875; 1,955,269 (Japan); European Patent 367,299; 414,281; 367,300; 367,298; UK 2,072,832; France 81/03938; Italy 1,138,713

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Revision A

AP-4111DS Access Point Antenna

The AP-4111 DS access point contains a built-in dual antenna assembly providing diversity, improved performance and increased signal strength over single antenna applications. Antenna coverage resembles lighting in that an area lit from far away might not be bright enough. An area lit sharply minimizes coverage and creates dark areas where no light exists. Uniform AP placement provides even, efficient coverage.

Position the AP-4111 DS access point and antenna using the following guidelines:

- Install the access point as high as practical
- Orient the access point vertically for best reception
- Point the antenna downward if attaching the access point to the ceiling.

Connecting the Power Adapter

The power adapter connects to the rear of the AP and to a power outlet.

1. Verify that the power adapter matches the country-of-use requirements.
2. Plug the power adapter cable into the socket at the back of the AP.
3. Plug the adapter into an outlet.

The AP functions without user intervention after setup. Refer to the LED Indicators section of this document to verify that the unit is functioning correctly.

Specifications

Physical Characteristics

Dimensions	1.75" H x 6" L x 8.5" W 4.45"cm H x 15.24"cm L x 21.59"cm W
Weight (w/power supply)	1 lbs. (0.454 kg)
Operating Temperature	-4° F to 131° F (-20° C to 55° C)
Storage Temperature	-40° F to 149° F (-40° C to 65° C)
Humidity	10% to 95% noncondensing
Shock	40 G, 11 ms, half-sine
ESD	meets CE-Mark
Drop	withstands up to a 30-inch (76 cm) drop to concrete with possible surface marring

Radio Characteristics

Frequency Range	country dependent; within 2400 MHz to 2500 MHz

Frequency	*Number of Channels*	*Country*
2412-2470	1-11	United States
2430-2447	5-8	Israel
2457-2463	10-11	Spain
2458-2472	10-13	France
2483-2485	1	Japan

11 Mbps range	open environment - over 100 ft. typical office/retail environment - 30 - 50 feet
TX Max. Radiated EIRP	US: FCC part 15.247 Europe: ETS 300 320 Japan: RCR STD-33
Modulation	Binary GFSK
Emissions	Europe: ETS 300 320 Japan: RCR STD-33

LED Indicators

The top-panel LED indicators provide a status display indicating transmission, error conditions and other activity. They are;

Power:
Flashing indicates AP initialization. Appears steady Green during operation.

LAN:
Flashing indicates data transfer on the wired network.

Wireless:
Flickering indicates beacons and MU data transfer.

Network Characteristics

Driver Support	NDIS v4.0 and v5.0
Ethernet Frame	DIX, Ethernet_II and IEEE 802.3
Filtering Packet Rate	14,400 frames per second filtering and forwarding
Ethernet Connection	10Base-T (RJ-45)
Serial	PC/AT serial port - DB9 Male RS-232 using a DTE termination, 19,200 bps
SNMP	Version 1, Symbol MIB, 802.11 MIB and MIB-11

Customer Support

Symbol Technologies provides its customers with world-class customer service and technical support. The Symbol Support Center operates as the single point of contact for any technical problem, question or support issue.

The Support Center operates all year, 24 hours a day, staffed by full-time professional Technical Specialists.

If Symbol cannot solve the problem immediately within its tiered, technical-support center, access to all technical disciplines within Symbol become available for further assistance and support.

First response / contact within 24 hours or one business day. Responses by email, fax or telephone.

North American Contacts

Inside North America, contact Symbol at:
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http://www.symbol.com/