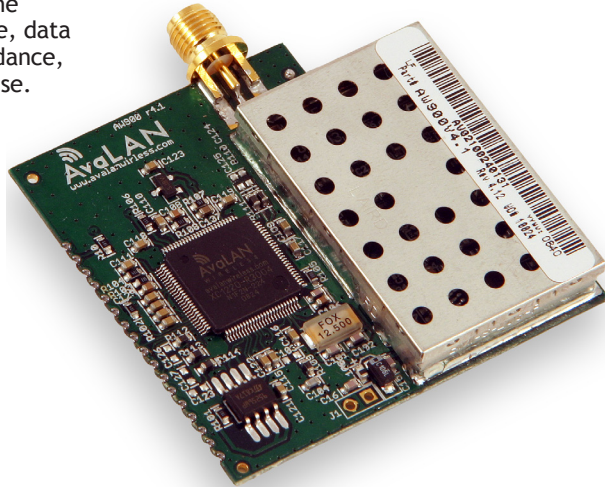AvaLAN
W I R E L E S S

Non-line-of-sight :: 900 MHz

The AW900MSPI module allows you to build your own long-range, non-line-of-sight, point-to-multipoint wireless solution that can enable any remote device.

The AW900MSPI solution offers the ideal combination of price, range, data rate, security, interference avoidance, quality-of-service, and ease-of-use.

AW900MSPI-10 RF Modules

Quantity 10, 900 MHz non-line-of-sight, point-to-multipoint radio transceiver modules. Call for larger quantity pricing.
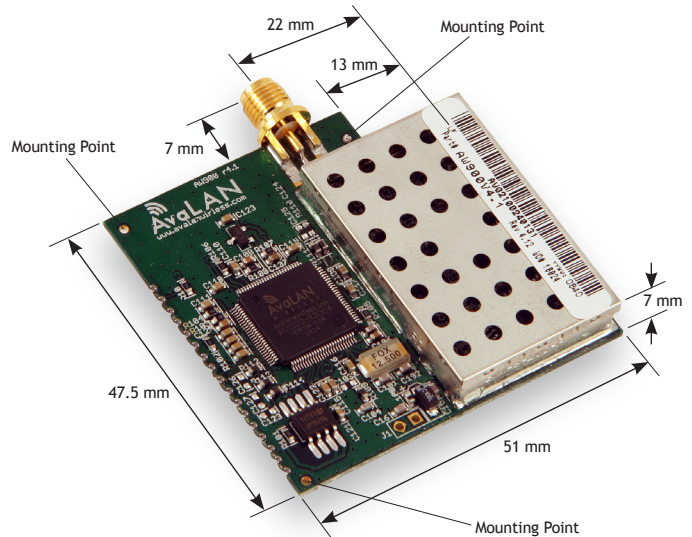
AW900MSPI-EVAL OEM Kit
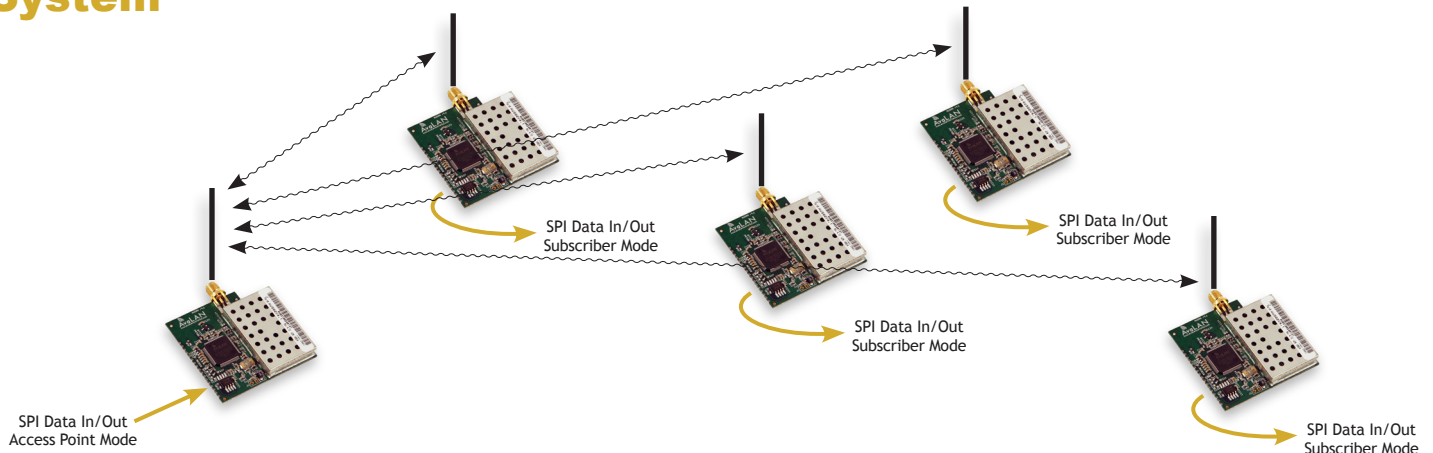
Evaluation and software development kit.

Contents:
- (2) AW900MSPI Radio Modules
- (2) AWP8 8" RPSMA to RPTNC Bulkhead pigtails
- (2) AW2-900 Omni-directional antennas
- (2) AWEVAL Evaluation Boards
- (2) USB cables
- (2) 12 VDC power supplies

Features

- 1.54 Mbps DSSS Radio with high speed SPI and UART data interfaces

- FCC/IC certified modular approval for 900 MHz

- 128 bit AES encryption - FIPS 197 NIST certified

- 148 dB link budget enables exceptional range:
    4 watts EIRP with 15 dBi antenna (+21 dB conducted)
    -112 dB receive sensitivity with 15 dBi antenna (-97 dB at port)

- TDMA MAC supports up to 63 concurrent subscribers

- Low power draw: 0.75w transmitting, 2µw standby at 3.3 VDC

- Wide temperature range: -40° to +80°C

- Narrow occupied bandwidth allows 12 channels within 900 MHz band

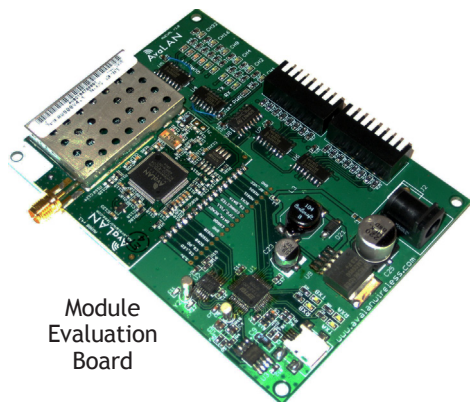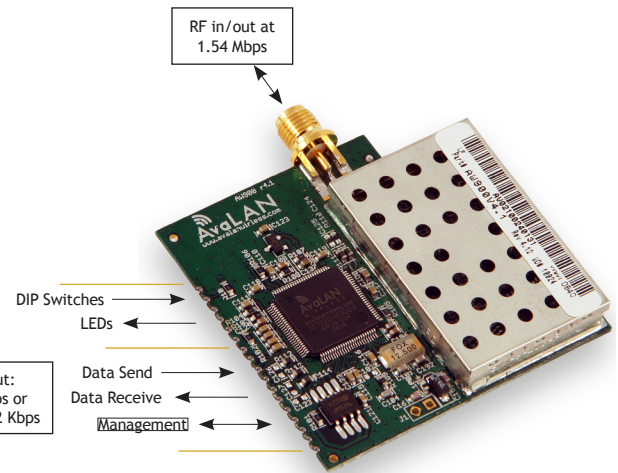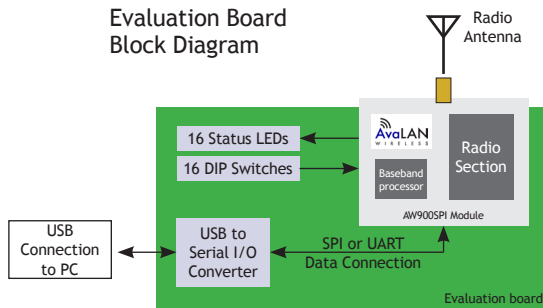- Small form factor allows easy integration: 47.5 x 51 x 7 mm

22 mm
13 mm
7 mm
Mounting Point
Mounting Point
47.5 mm
7 mm
51 mm
Mounting Point

System

SPI Data In/Out
Subscriber Mode

SPI Data In/Out
Subscriber Mode

SPI Data In/Out
Subscriber Mode

SPI Data In/Out
Subscriber Mode

SPI Data In/Out
Access Point Mode

Evaluation System

Evaluation Board Block Diagram

- Radio Antenna
- 16 Status LEDs
- 16 DIP Switches
- USB Connection to PC
- USB to Serial I/O Converter
- SPI or UART Data Connection
- AW900SPI Module
- Baseband processor
- Radio Section
- Evaluation board

- RF in/out at 1.54 Mbps
- DIP Switches
- LEDs
- Data in/out: SPI at 7 Mbps or UART at 115.2 Kbps
- Data Send
- Data Receive
- Management

Module Evaluation Board

The command set includes:

0x01	getStatus	0x81	setStatus
0x02	getPublicKey	0x82	setPublicKey
0x03	getPrivateKey	0x83	setPrivateKey
0x04	getDeviceID	0x84	setDeviceID
0x05	getStats	0x85	setReset
0x06	getVersion	0x8A	setDATAPacket
0x08	getNumberOfConnectedSUs	0x8B	setFirmwareStart
0x09	getRSSIreadings	0x8C	setFirmwareEnd
0x0A	getDATAPacket		

Design files include C source code for command set.

Technical specifications

CHARACTERISTIC	SPECIFICATION / DESCRIPTION
RF transmission rate	1.536 Mbps
Serial throughput	1.2 Mbps
Output power	+21 dBm (4 Watts EIRP used with 15 dBi antenna)
Receive sensitivity	-97 dBm at 10e-4 BER (-112 dBm with 15 dBi antenna)
Radio link budget	148 dB with 15 dBi antenna
Range	40 miles LOS with 15 dBi antenna
Radio channels/bandwidth	12 non-overlapping with 2.0833 MHz spacing and 1.75 MHz occupied bandwidth
Manual frequency select	Channel can be selected with DIP switches or via command set instruction
Connector type	RF RPSMA Female
Error correction technique	Sub-block error detection and retransmission
Voltage	3.3 VDC
Temperature range	-40º C to +80º C
Power Consumption	Transmit: 0.75 Watts Receive: 0.5 Watts Sleep: 2 µW
Size	47.5 x 51 x 7 mm, 10 grams