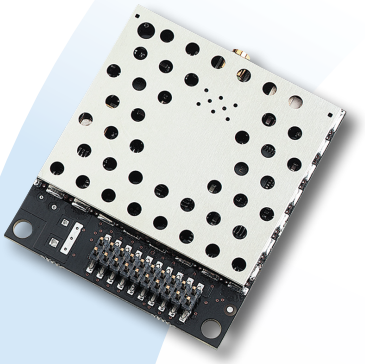
Laird TECHNOLOGIES

Innovative **Technology** for a **Connected** World

AC4490
900MHz Radio Module



THE FASTEST WAY TO WIRELESS

Laird Technologies' compact AC4490 900MHz radio modules replace miles of cable in harsh industrial environments. Using field-proven FHSS technology that needs no additional site licensing*, AC4490s reject interference, enable co-located system operation, provide a full range of output power, and maintain data integrity.

The AC4490 features include drop-in installation and a number of on-the-fly control commands, providing OEMs with a versatile interface for any application. They can be used as direct cable replacements, requiring no special host software for communication. All frequency hopping, synchronization, and RF system data transmission/reception is performed by the module.

This radio module can achieve open field ranges in excess of 20 miles, has high propogation in the 900 MHz band, and includes options for 1W power transmission and a sensitive low noise amplifier in the receive chain.

AC4490 modules are socket-compatible with Laird Technologies' 2.4GHz AC4424 modules, enabling OEMs to design once and subsequently interchange radios to accommodate new markets, regulations, and environments. Developer tools and comprehensive technical support are available to aid integration. Contact Laird Technologies to help you find the best fit for your application.

FEATURES

- Lowest cost one-watt module available
- "Long range" mode enables 20 miles
- High 900MHz data rate: 32 kbps
- Small form factor: 1.65 x 1.9 inches
- Operates in –40°C to +80°C temp range
- Variable output power: 5mW to 1000mW
- Simple Configuration

MARKETS

- Recreation
- Utility Management
- Commercial Buildings
- Fleet Telemetry
- Field Surveillance

global solutions: local support™

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FLEXIBLE RF PROTOCOL

Laird Technologies' embedded transparent protocol simplifies the OEM's integration process by utilizing drop-in installation. As each radio module receives raw data, it manages its over-the-air protocol to assure successful communication. Headers, data packet length, and CRCs are not required. The RF232 supports simple cable-replacement to complex peer-to-peer configurations, broadcast communication to all radio modules or address packets to a specific destination using unique MAC addresses embedded in each radio module.

SPECIFICATIONS

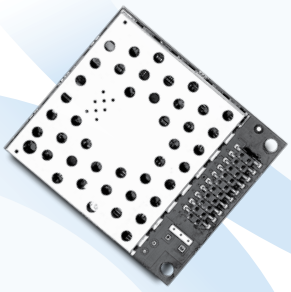
Parameter	AC4490–200	AC4490–1000
Interface	20-pin mini connector	20-pin mini connector
Frequency (software selectable)	902-928 MHz (U.S)**	902-928 MHz (U.S)**
Modulation	FHSS FSK	FHSS FSK
Serial interface options	3V or 5V TTL	3V TTL
Serial interface data rate	Up to 115.2 Kbps	Up to 115.2 Kbps
Output power (w/ 3dBi antenna)	5mW-200mW variable	5mW-1000mW variable
Current consumption††	68 mA typical	650 mA typical
Channels	Up to 48 (U.S.)**	Up to 32 (U.S.)**
Security	One-byte system ID, DES	One-byte system ID, DES
Voltage	3.3V-5.5V	pin 10: 3.3V-5.5V pin 11: 3.3V +/-3%
Sensitivity	-110 dB in "long range" mode	-110 dB in "long range" mode
Range	Up to 4 miles (6.5 km)	Up to 20 miles (32 km)
Temperature	-40° to +80°C	-40° to +80°C
Humidity (non-condensing)	10% to 90%	10% to 90%
Dimensions	1.90 x 1.65 x 0.20" (49 x 42 x 5 mm)	1.90 x 1.65 x 0.20" (49 x 42 x 5 mm)
Weight	< 0.75 oz (< 21 g)	< 0.75 oz (< 21 g)
Antenna	Integral or external dipole	External dipole

*The 900MHz frequency band is approved in the Americas and Australia as an unlicensed spectrum subject to approval by device.

**For products and specifications suited to non-U.S. countries (e.g. Australia and Europe), please contact Laird Technologies directly.

†Although AC4490 radios will not talk to AC4424 radios, socket-compatibility allows for interchanging the modules network-wide.

††Current consumption assumes 50% transmitter on-time.



The details contained within the document are subject to change. Download the product specification from www.lairdtech.com/wireless for the most current specification.

RF PROTOCOL MODES

a) Communication
   Unicast (one-to-one addressing)
   Broadcast (one-to-multiple addressing)
b) Acknowledgement mode (ACK)
   API with hardware and/or software ACK indication
c) One-beacon mode
d) Dynamic radio data table:
   Retains data from up to 12 radio modules

INTERFACE PROTOCOL

a) On-the-fly radio module configuration:
   Destination address
   RF transmit power
   Co-located servers
   RF channel
   Broadcast/addressed
b) Raw data or transmit/receive API
c) 9-bit serial interface mode
d) Long range mode, enables sensitivity control
e) Generic A/D, D/A generic I/Os
f) Variable baud rate
g) RF packet size, timeout control
h) Onboard temperature sensor
i) Handshaking, CTS/RTS, full modem-mode available
j) In-range indicator
k) Error detection
   Onboard CRC
   Duplicate packet filtering
l) Data encryption standard (DES)

LWS-SPEC-AC4490 0109