

AC4490-1X1

900MHz Radio Module

THE FASTEST WAY TO WIRELESS

Laird Technologies' tiny AC4490-1x1 radio modules put the power of wireless into the smallest, most cost-sensitive applications. Despite their small size, the modules can replace a mile of cable even in harsh industrial conditions.

Using field-proven FHSS 900MHz technology that utilizes an unlicensed frequency band*, AC4490-1x1s reject interference, enable co-located system operation, and ensure data integrity.

With the help of a unique transparent protocol (RF232™), AC4490-1x1 integration is easy. OEMs simply solder the radio modules and antennas into place, then power-on. All frequency hopping, synchronization, and RF system data transmission/reception is performed by the radio module.

The AC4490-1x1's standard TTL interface provides bi-directional communication in point-to-point and point-to-multipoint networks. A number of on-the-fly control commands accommodate varying wireless applications.

FEATURES

- Smallest form factor: one inch square
- Highest 900MHz data rate: 115.2 kbps
- Operates in -40°C to +85°C temp. range
- Easiest installation: protocol included
- Extremely low power for battery operation
- Range up to 1 mile

MARKETS

- Recreation
- Utility Management

global solutions: local support™

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FLEXIBLE RF PROTOCOL

Laird Technologies' embedded transparent protocol simplifies the OEM's integration process by providing drop-in design. As each radio module receives raw data, it manages the 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	AC4490-1x1
Interface	SMT
Frequency band (software selectable)	902-928 MHz (North America)**
Modulation	FHSS FSK
Serial interface options	3V TTL
Serial interface data rate	Up to 115.2 Kbps
Output power (w/ 3dBi antenna)	0mW-10mW variable
Current consumption (transmit/receive)†	80mA / 28mA
Channels	Up to 48 (North America)**
Security	One-byte system ID
Voltage	3.3V
Sensitivity	-99 dB @ full RF data rate
Range (line-of-sight w/ 3dBi antenna)	Up to 1 mile (1.6 km)
Temperature	-40° to +80°C
Humidity (non-condensing)	10% to 90%
Dimensions	1.0 x 1.0 x 0.2" (2.6 x 2.6 x 0.6 cm)
Weight	< 0.5 oz (< 15 g)
Antenna	External via SMT pad

*The 900MHz 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.

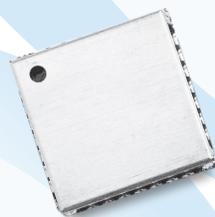
†Current consumption assumes 50% transmitter on-time.

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) 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)



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

AC4490 1X1 is not FCC approved. Laird Technologies will assist with the approval process for high volume customers.

LWS-SPEC-AC4490 1X1 0209

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