

The fastest way to wireless.

Tiny AC4790-1x1 transceivers put the power of a masterless protocol into the smallest, most cost-sensitive wireless applications. Despite their amazing size, 1x1 modules can communicate with any other in-range 1x1 transceiver, even in harsh industrial conditions, allowing for virtually infinite range.

AC4790-1x1's RF protocol features a dynamic addressing scheme, which simplifies node-to-node communication. The transceiver identifies the most efficient transmission path, so OEMs can design routing sequences that optimize the RF network. This makes 1x1 ideal for a wide variety of industrial applications that must rely on smooth, constant data flow.

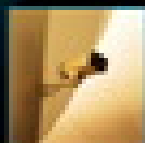
Using field-proven 900MHz FHSS technology that needs no additional site licensing*, 1x1s reject interference, enable co-located system operation, increase output power and maintain data integrity. And integration is painless. OEMs simply solder the transceivers and antennas into place, then power-on. Hopping, synchronization and system data TX/RX is performed in the firmware.



AC4790-1x1 Highlights

- True **peer-to-peer** protocol.
- Smallest form factor: **one inch square**.
- **API commands** to control packet routing.
- Software-controlled sensitivity.
- Remote radio discovery.
- Low power for **battery-operated** products.

Applications



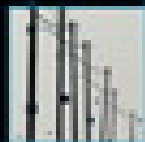
Commercial Buildings

- Security & fire alarms
- Lighting controls
- Surveillance
- Building automation
- HVAC controls



Field Surveillance

- SCADA
- Oil & gas
- Water & wastewater
- Tank monitoring
- Activity alarms



Utilities Management

- Automatic meter reading
- Load profiling, forecasting
- Data management
- Tampering alerts
- Real-time support



Recreation Areas

- Golf cart tracking
- Score keeping
- Order entry
- Irrigation systems
- Grounds maintenance



Fleet Telemetry

- Vehicle tracking
- Cargo data
- Weigh scales
- Maintenance logs
- Mapping

Specifications

PARAMETER

AC4790-1X1

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
Power 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 inches (2.6 x 2.6 x 0.6 cm)
Weight	< 0.5 oz (< 15 g)
Antenna	Integrated and external dipole

* 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 AeroComm directly.

† Power consumption assumes 50% transmitter on-time.



Flexible RF Protocol

AeroComm's RF232™ embedded transparent protocol simplifies the OEM's integration process by allowing for drop-in installation. As each transceiver receives raw data, it manages over-the-air protocol to assure successful communication. Headers, data packet length, and CRCs are not needed.

AC4790's flexible "masterless" topology supports simple cable-replacement up to complex peer-to-peer configurations. Broadcast communication to all transceivers or address packets to a specific destination using unique MAC addresses embedded in each transceiver.

Protocol Features

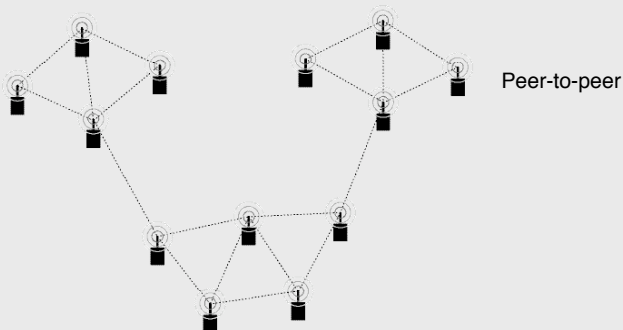
RF PROTOCOL MODES

- a) **Communication**
Unicast (one-to-one addressing)
Broadcast (one-to-many addressing)
- b) **Acknowledgement mode (ACK)**
API with hardware and/or software
ACK indication
- c) **Ultra-fast sync time**
Up to 25 simultaneous conversations
Intelligent self-extending session time
requires only one 25 msec sync
- d) **Remote over-the-air configuration**
- e) **Sensadjust**
Software-controlled RF desensitizer
wards off interference
- f) **Random back-off**
- g) **Network node discovery**
- h) **Dynamic radio data table**
Retains data from up to 8 transceivers

INTERFACE PROTOCOL

- a) **On-the-fly transceiver configuration**
Full API Control
Destination address
RF transmit power
RF Channel
Broadcast/addressed
- b) **Raw data or transmit/receive API**
- c) **Long range mode**
Enables sensitivity control
- d) **A/D, D/A generic I/Os**
- e) **Variable baud rate**
- f) **RF packet size, timeout control**
- g) **Onboard temperature sensor**
- h) **Handshaking**
CTS/RTS
- i) **In-range indicator**
- j) **Error detection**
Onboard CRC
Duplicate packet filtering
- k) **Data encryption standard (DES)**

ARCHITECTURE



Placing Orders

Contact AeroComm Sales for pricing and product details: phone toll-free 1-800-492-2320, email sales@aerocomm.com. More product lines are available for industrial & commercial applications.

PART NUMBER

AC4790-1x1

900MHz transceiver, 3.3V, TTL serial interface, 10mW, .40° to +80° C.



AC4790-1x1, Actual Size

