# The fastest way to wireless.

AeroComm's ACE RF data modem combines high performance and reliability with heavy-duty packaging designed to withstand harsh environmental conditionssplashing water, corrosive agents, dirt, ice and snow. ACE suits rugged industrial applications where outdoor communications and NEMA-4x ratings are essential. ACE provides high output power to deliver line-ofsight ranges up to 20 miles with high-gain antennas.

ACE embeds two different protocols to complement a variety of industrial uses. ACE6790 utilizes a dynamic addressing peer-to-peer protocol for enabling true mesh topology, while the ACE6490 employs AeroComm's signature client/server architecture for point-to-point or point-to-multipoint networks.

ACE modems are completely compatible with AeroComm's AC4490 transceivers and CL4490 commercial modems. This allows OEMs to construct systems which utilize ruggedized devices only where necessary, saving system costs.

# Applications



Field Surveillance Small yet durable, ACEs make it possible to set up communication points anywhere they are needed. Use in SCADA, utilities and other



### outdoor applications. Process Control

Set up any factory or lab conveniently. Engineers and technicians can guick ly move data links from machine to machine without costly wiring.



Weigh Scales Instantly access weight and measurement data ACE virtually cuts wires to all brands and sizes of scale equipment, from indi-

cators to receipt printers.



Data Logging Upload data to your PC from your logger or monitor without aetting up from the chair. Use ACE for level monitoring, control instruments, etc



**Electronic Signs** Faster, cheaper and less invasive than trenching to lay cable, ACEs simply attach to the serial ports of both the PC and sign or

# Specifications

### PARAMETER

## ACE6490 MODEL

Network architecture	Client/server
Standard interface	RS232 or RS485
Frequency, modulation	902-928 MHz FHSS FSK
Serial interface data rate	Up to 115.2 Kbps
Output power	1000mW variable
Input power	7Vdc to 26Vdc
Power consumption	400mA TX, 40mA RX
Power supply	AC transformer via 6-foot (183 cm) c (optional; provided with starter packs
Connection	16-pin connector (optional cable with DB9 female; power-supply jack)
Electrical requirements	Line voltage 100-120V (240V outside Frequency 50-60 Hz
Channels	Up to 32
Security	1-byte system ID, DES
Sensitivity	-99 dB @ full RF data rate
Range (line of sight)	Up to 20 miles (32 km) w/ high-gain a
Temperature	-40° to +80°C
Humidity (non-condensing)	10% to 90%
Dimensions	6.87 x 3.57 x 2.05 inches (175 x 91 >
Weight	< 10 oz (< 284 g)
Antenna; connector	Dipole; RPSMA jack (female)
Configuration software	Optional, for Windows OS



# **ACE Product Highlights**

- NEMA-4x rated packaging.
- One full watt of RF output power.
- Industrial temp range -40° to +80° C.
- Standard interface, RS232 or RS485.

ACE	6790	MODEL

	Peer-to-peer
	RS232 or RS485
	902-928 MHz FHSS FSK
	Up to 115.2 Kbps
	1000mW variable
	7Vdc to 26Vdc
	400mA TX, 40mA RX
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	16-pin connector (optional cable with DB9 female; power-supply jack)
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	Up to 32
	1-byte system ID, DES
	-99 dB @ full RF data rate
ntenna	Up to 20 miles (32 km) w/ high-gain antenna
	-40° to +80°C
	10% to 90%
52 mm)	6.87 x 3.57 x 2.05 inches (175 x 91 x 52 mm)
	< 10 oz (< 284 g)
	Dipole; RPSMA jack (female)
	Optional, for Windows OS



# RF232<sup>®</sup> Protocol

AeroComm's unique embedded transparent protocol simplifies the OEM's integration process by allowing for plug-and-play installation. As each ACE modem receives raw data, it manages over-the-air protocol to assure successful communication.

### **RF PROTOCOL**

#### Acknowledgment (ACK)

Transmitted packets are successfully acknowledged. If not, they are resent until successful (user-selectable number of retries). Error detection is used and duplicate data is filtered out before sending to the host interface. Optional *full duplex control* setting allows equal time for transmitting and receiving data at the RF level, keeping a single transmitter from dominating the system bandwidth.

### INTERFACE PROTOCOL

#### Change configuration commands

ACE's configuration can be changed through AT commands. Change-on-the-fly parameters include client or server designation, destination MAC address, channel number (to communicate with a different server), enter/exit low-power modes, etc. Custom settings are available by user request.

#### In-range indicator

Hardware link indication of client in range of server.

### ERROR HANDLING

#### Error detection

Multi-stage error detection with transmitter retries for RF system and raw data. Duplicate packets are filtered out when data is received more than once due to retries and missed ACKs.

#### Data encryption standard (DES)

DEC uses an established algorithm and a 56-bit key stored in onboard EEPROM to protect data.



# **Ordering Information**

Select features from the list below to identify the appropriate part number. More product lines are available for industrial and commercial applications. Contact the sales team for details. Toll-free 1-800-492-2320, email <u>sales@aerocomm.com</u>.

#### DESCRIPTION: NUMBER: ACE6490 industrial RF modem, client/server protocol, 1000mW, -40° to +80° C, RS232 interface\* ACE6490-1000-232 Set of two (2) ACE6490 industrial RF modems, client/server protocol, 1000mW, -40° to +80° C, RS232 interface\* ACE6490-1000-232-SP ACE6490 industrial RF modem, client/server protocol, 1000mW, -40° to +80° C, RS485 interface\* ACE6490-1000-485 Set of two (2) ACE6490 industrial RF modems, client/server protocol, 1000mW, -40° to +80° C, RS485 interface\* ACE6490-1000-485-SP ACE6790 industrial RF modem, peer-to-peer protocol, 1000mW, -40° to +80° C, RS232 interface\* ACE6790-1000-232 Set of two (2) ACE6790 industrial RF modems, peer-to-peer protocol, 1000mW, -40° to +80° C, RS232 interface\* ACE6790-1000-232-SP ACE6790 industrial RF modem, peer-to-peer protocol, 1000mW, -40° to +80° C, RS485 interface\* ACE6790-1000-485 ACE6790-1000-485-SP Set of two (2) ACE6790 industrial RF modems, peer-to-peer protocol, 1000mW, -40° to +80° C, RS485 interface\*

\* RS485 interface options are also available.

