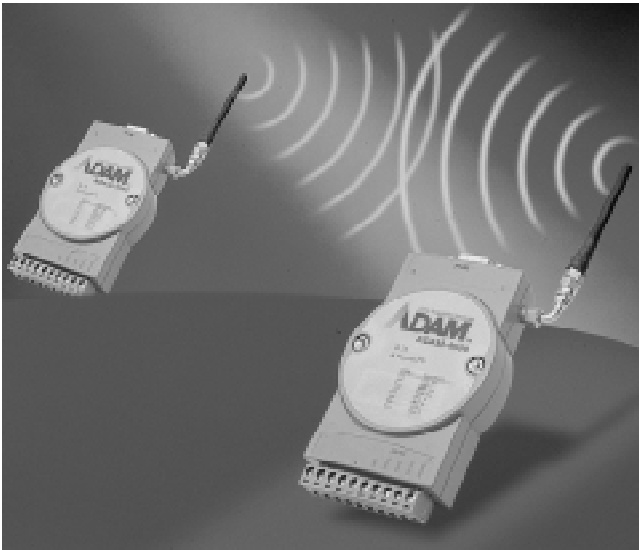


# ADAM-4550

## 2.4 GHz Radio Modem Module (RS-232/485 Interface)



### Introduction

ADAM-4550 is a new Direct-Sequence Spread Spectrum radio modem. It operates in the 2.4 GHz ISM band license-free with worldwide compliance. Communication with the user is provided through both RS-232 and RS-485 serial interfaces at speeds up to 115.2 Kbps.

The unit operates half duplex with an over-the-air data rate of 1 Mbps. The basic modem has 100 mW of output power and has a range of over 150 meters using a small whip antenna on its rear panel. Ranges in excess of 20 km (line-of-sight) are possible with an external pole-mounted high gain antenna available from Advantech.

The RS-485 standard supports half-duplex communication. This means a single pair of wires is used to both transmit and receive data. Handshaking signals such as RTS ( Request To Send ) are normally used to control the direction of the data flow. A special I/O circuit in the ADAM-4550 automatically senses the direction of data flow making handshaking signals unnecessary.

The ADAM-4550 radio modem provides reliable wireless connectivity for either point-to-point or point-to-multipoint networks. It is designed for data acquisition and control applications between remote sensors and the host computer. A typical application might include using an ADAM-4550 connected to a host computer via the RS-232 interface, and a number of ADAM-4550 units at remote sites. Each remote ADAM-4550 can interface with a number of remote devices via an RS-485 network. The ADAM-4550 modules at the remote sites relay the remote data to the host ADAM-4550 and the host ADAM-4550 sends the control commands to the remote sites via radio transmission.

### Features

- Software configurable RS-232 and RS-485 data rates up to 115.2 Kbps
- Over 20 km transmission radius possible with external antenna and amplifier
- Built-in watchdog timer and automatic RS-485 data flow control
- Spread-spectrum radio modulation
- Operates in a worldwide license-free band (2.4 GHz)
- Over-the-air data flow rate between units of 1 Mbps
- Software configurable radio transceiver address
- Easily mounts on DIN-rail, panel or piggyback
- EEPROM for storing communication setups
- Supports point-to-point or point-to-multipoint application
- Transparent IEEE 802.1 protocol with 10 K buffer helps assure data integrity
- Power and data flow indicators for troubleshooting
- Includes diagnostic software for radio link measurement
- Complies with FCC Part 15 Rules and ETSI 300.683/300.328

### Specifications

- **RS-232/RS-485 transmission speed (bps):** 1200, 2400, 4800, 9600, 19.2 K, 38.4 K, 57.6 K, 115.2 K
- **RS-232 interface connector:** Female DB-9
- **RS-485 interface connector:** Plug-in screw type terminal [accepts AWG 1-#12 or 2-#14-#22 (0.5 to 2.5 mm<sup>2</sup>) wires]
- **Radio transmission rate:** 1 Mbps
- **Radio transmission frequency:** 2.45 GHz nominal
- **Radio transmission power:** 100 mW nominal
- **Radio modulation:** Direct Sequence Spread Spectrum PSK
- **Radio transceiver address:** Software configurable up to 254 different addresses
- **Communication distance:** 550 feet effective range (under open site test with 2 dBi omni antenna). Actual distance depends on environmental conditions, antenna type and positioning.
- **Operating temperature:** 0 ~ 70° C (14 ~ 158° F)
- **Power requirements:** +10 to +30 V<sub>DC</sub> (non-regulated)
- **Power consumption:** 4 W
- **Dimensions:** 60 mm x 120 mm (2.36" x 4.41")

### Ordering Information

- ADAM-4550:** 2.4 GHz radio modem module (RS-232/RS-485 interface)
- Antenna, Cable, and Adapter:** Available on request