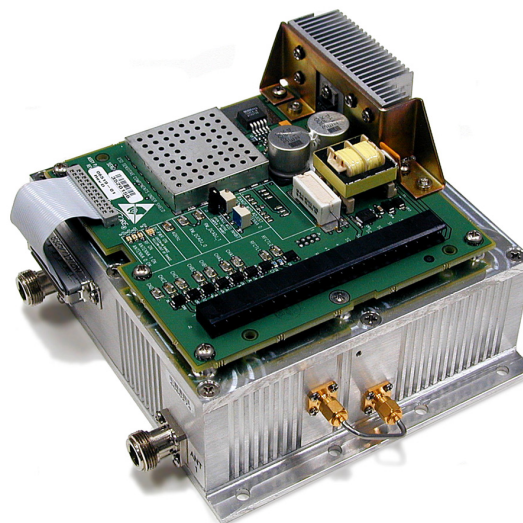


# AR2200 (Version 2) RF Module

## Features

- ▶ Capable of operating up to two antennas
- ▶ Independent range modulation sensitivity adjustment for each antenna port allows controlled introduction of a signal tailored to mask stray signals without reducing RF power.
- ▶ Patented homodyne receiver prevents signal dropout, allowing the system to read tags moving at high speed.
- ▶ Design improves system immunity to noise.
- ▶ Interface board filters direct current (DC) power received from reader or power supply and protects output circuitry from damage due to transient signals on the cable.
- ▶ Indicator light-emitting diodes (LED) display the power status of such functions as DC power, radio frequency (RF), and the antennas.



The AR2200 (Version 2) RF Module is a dual-output radio transmitter/receiver that is controlled by a TransCore AI1200-series or AI1301 Reader.

Upon command from the reader, the RF module generates and delivers an RF signal to one or two antennas for broadcast. The RF module then receives and demodulates the reflected tag signal returned through the antenna and preamplifies and conditions the demodulated signal before sending it to the reader.

Controlled by the reader, the RF module can operate continuously or can be activated in response to a sensor input signal indicating the detected presence of an object.

Normal mode allows a single reader to drive two antennas from one RF module when the cable length required to separate the two reading areas is less than 100 feet (30.5 m). For greater separation of reading areas — cable length up to 1000 feet (305 m) — two RF modules configured in compatibility mode may be used to drive one antenna each.

The range modulation sensitivity adjustment feature is used to screen unwanted tag signals without reducing the RF power. This feature reduces the system's reading range and the difference between peak and continuous read sensitivity. This feature allows each antenna port to be adjusted independently of the other.

The preamplifier provides analog signal output capable of driving up to 1000 feet (305 m) of cable. These balanced signal lines are low impedance and incorporate electrostatic discharge protection.

The RF module is connected to the reader through cables attached to the RF module's interface board. All control and data connections are secured at a quick-disconnect type terminal strip on the RF module interface board.

# AR2200 (Version 2) RF Module

## COMMUNICATIONS

### Frequency Range

902.25 to 928.00 MHz

**Note:** The authorized frequencies for use in the United States are 902.25 to 903.75 and 910.00 to 921.50 MHz. Frequencies adjustable in 0.25 MHz steps.

TransCore assigns additional frequencies in the 915 MHz band according to the following table.

BUILDABLE FREQUENCY ASSIGNMENT SEQUENCE	
RF MODULE OPTION	FACTORY SET FREQUENCY RANGE
-03	902.250 to 908.500
-04	908.750 to 917.000
-05	917.250 to 928.000

At sites with two RF modules installed, use a 6-MHz frequency separation between the modules. At sites with three or more RF modules installed, use a lesser frequency separation, for example, 2 MHz or 1 MHz. If site requirements dictate that operating frequencies need to be separated by less than 1 MHz, the requirements must be assessed on a site-by-site basis before TransCore assigns specific RF module operating frequencies. You should be able to use any frequency (available in that country) independent of the number of RF modules operating within a one-mile area.

## HARDWARE FEATURES

### RF Connectors

Type N socket

## POWER

### Input Power

12.5V DC  $\pm$ 1.0V DC

### Power Consumption

35W maximum

### Output Power

1.8W  $\pm$ 0.2W

## PHYSICAL

### Specifications

<sup>1</sup>**Size:** 12.0 x 12.0 x 6.0 in. (30.48 x 30.48 x 15.24 cm)

<sup>1</sup>**Weight:** 14.5 lb (6.6 kg)

<sup>1</sup>AR2200 RF Module, baseplate, and NEMA

<sup>2</sup>**Size:** 10.75 x 10.785 x 3.985 in. (27.31 x 27.62 x 10.12 cm)

<sup>2</sup>**Weight:** 5.8 lb (2.6 kg)

<sup>2</sup>RF module and baseplate

## ENVIRONMENTAL

### Operating Temperature

-40° to +158°F (-40° to +70°C) RF module

-40° to +131°F (-40° to +55°C) RF module mounted in NEMA enclosure

### Humidity

95% noncondensing

### Shock

15 G, 1/2-sine pulse, 6-millisecond duration, 3 axes

### Vibration

2.0 G<sub>rms</sub>, 10 to 500 Hz

## STANDARDS

### UL Compliant

The AR2200 (Version 2) RF Module when used in conjunction with an AI1200-series or AI1301 Reader is compliant with the requirements of the Standard for Information Technology and Telecommunications Equipment (UL60950 Third Edition) and Canadian Standards (CSA) Safety of Information Technology Equipment CSA C22.2 No. 60950-00-CAN/CSA.

### ISO, AAR, ATA, ANSI

Meets the hardware and firmware configuration and performance criteria specified by the International Organization for Standardization's (ISO) container identification standard. It also meets the standards for automatic equipment identification set by the Association of American Railroads (AAR), the American Trucking Associations (ATA), and American National Standards Institute (ANSI).

## LICENSING

### Equipment License

The user is required to obtain a Part 90 site license from the FCC to operate the unit in the United States. Access the FCC Web site at [www.wireless.fcc.gov/uls](http://www.wireless.fcc.gov/uls) for more information.

**FCC ID:** FIH22000555201

Users in all countries should check with the appropriate local authorities for licensing requirements.

## COMPLIANCE

### RF Interference

Units have been tested and are verified to Part 15 of the FCC rules for a Class A digital device.

## OPTIONS

### Weatherproof Enclosure

The RF module comes housed in a NEMA-4 enclosure.

### Custom Installation

The RF module installation can be customized, however, TransCore *strongly* recommends that you contact TransCore to have your RF module mounting option evaluated.

## ACCESSORIES

### Attenuators

TransCore offers 5-watt, 1- to 24-decibel attenuators with N-type connectors.

### Check Tag

TransCore offers an AT5720 Check Tag for simulating toll transactions.

## DOCUMENTATION

*AR2200 (Version 2) RF Module User Guide*

For more information:

Call **800.923.4824** (Sales Support) **505.856.8007** (Technical Support)

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