

RF-382A Series
FAST TUNE AUTOMATIC
ANTENNA COUPLER



The RF-382A Series couplers efficiently and automatically match the output of 100 to 500 watt transceivers and transmitters to a wide variety of whip, dipole, and long-wire antennas over the frequency range of 1.6 to 30 MHz. Tuning time from memory is less than 200 milliseconds.

RF-382A Series couplers operate with adaptive communications systems that require very fast frequency change. Rugged and reliable, they operate under the most severe environmental conditions in vehicular, transportable, shipboard, and fixed-station applications.

RF-382A Antenna Couplers are designed for direct interface with Falcon® RF-5000 and RF-5200 systems as well as the Falcon® II Series. They are fully compatible with RF-7210 Series Autolink®, 125/500 Watt Adaptive Communications Systems. The coupler requires a control cable and RF coax interface to connect to the associated transceiver-transmitter. Separation can be up to 250 feet (76 m). A high voltage ceramic insulator provides the connection to the antenna. It is also equipped with a 50-ohm N-connector antenna port for coaxial connection to a fixed site broadband or resonant antenna.

Internal built-in test to the module level provides rapid diagnostic troubleshooting and repair. In addition, all key operating parameters are continually monitored during operation. If parameters are exceeded, a coupler fault is reported to the receiver-transmitter.



Electrical

Rated RF Input Power, Frequency Range and Tuning Capability at the High Voltage Antenna Port

Up to 150 Watts PEP and Average: 1.6 to 30 MHz: 9 to 35 foot whips;
35 to 150 foot long wires: 40 to 100 foot dipoles (including RF-1912 and RF-1936)

Up to 500 Watts PEP; 250 Watts Average:

1.6 to 30 MHz: 75 to 150 foot long wires
1.6 to 30 MHz: 40 to 100 foot dipoles (including RF-1912 and AS-2259/GR)
2.5 to 30 MHz: 35 foot whips
4 to 30 MHz: 24 foot whips
6 to 30 MHz: 16 foot whips

50-Ohm Antenna Port Tuning Accuracy Tuning Time

Up to 400 Watts PEP and Average: broadband and dipole resonant fixed frequency antennas
Automatically tunes to 50 ohms to within a VSWR of 2:1

200 milliseconds tuning from memory based on prior tuneup. Initial tune time on new frequency typically less than three seconds (8 seconds maximum)

Efficiency

Whips: 1.6 to 4 MHz: 15 to 85%; 4 to 30 MHz: 50 to 95%
Long Wires and Dipoles: 1.6 to 30 MHz: 60 to 95%

Note: Efficiency depends on frequency, length, and ground plane

Channel Capability Protection Features

480 channel memory

Protection from high VSWR, high temperature, RF over-voltage and over-current
Lightning surge protection on all control lines. Can tune or key into an open or short without damage.

Receive Bypass

Automatic and manually controlled receive bypass

BIT

Fault isolation to module level

Tune Power Requirements

10 to 90 watts forward power through the tuning cycle

Installation

Primary Power Requirements

10 to 32 VDC at 4 amps maximum during tuning, 1.6 amps maximum when tuned

Remote Capability

Up to 250 foot separation between transmitter and coupler

Enclosure Design

Submersible to 3 feet (0.9 m) of water, designed for exposed installations

Weight

31 lbs (14 kg)

Size

7.65H x 11.25W x 18.5D inches (including projections)

19.4H x 28.6W x 47.0D cm (including projections)

Mounting

Four mounting hole dimensions: 7.25 x 14.85 inches (18.4 x 37.7 cm)

Accessories Supplied

Type N RF coaxial mating cable connector, control cable mating connector, cable installation material, coupler mounting hardware, installation material, and the Intermediate Maintenance manual

Color

RF-382A-04 is olive drab, RF-382A-15 is CARC green (383), RF-382-04 is navy gray

Environmental

Vibration

MIL-STD-810E: Method 514.4, Procedure I, category 8 (random vibration), for ground mobile equipment. MIL-STD-167-1: Type I (sinusoidal resonance search) for shipboard equipment

Shock

MIL-STD-810E: Method 516.4, Procedure I (functional shock 20G, 11ms sawtooth) for ground mobile equipment; Procedure VI (bench handling shock) for equipment experiencing bench-type maintenance

Temperature

MIL-STD-810E: Method 501.3, Procedures I and II (storage and operation at +70°C); Method 502.3, Procedures I and II (storage at -51°C and operation at -40°C)

Humidity

MIL-STD-810E: Method 507.3, Procedure II, Cycle 5

Altitude

MIL-STD-810E: Method 500.3, Procedures I and II (storage and operation to 15,000 feet)

Salt Fog

MIL-STD-810E: Method 509.3, Procedure I (5% salt solution)

Dust

MIL-STD-810E: Method 510.3, Procedures I and II (blowing dust and sand)

Rain

MIL-STD-810E: Method 506.3, Procedure I (blowing rain)

Leakage

MIL-STD-810E: Method 512.3, Procedure I (basic leakage - immersion)

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