



modular rf

**AR-50 SERIES**  
**Models AR-50, AR-50C2, AR-50M**  
**50 WATTS**  
**30 to 512 MHz**  
**JITC Certified**

**AR Modular RF's Model AR-50** is a portable, lightweight, RF sensing, band-switching, RF booster amplifier for multi-band operation compatible with **VHF/UHF/LOS/SATCOM** tactical radio equipment supporting legacy, proprietary and emerging waveforms with optional, full-duplex support for **MUOS**. Operation covers 30 to 512 MHz using high speed, auto-switching harmonic filters and is SINGARS and HAVEQUICK compatible. An integrated DC/DC converter supports a wide range of input voltages while maintaining constant output power. Built-in protections guard against antenna mismatch, over-temperature and accidental input power polarity reversal. Made to last, the **AR-50** is packaged in a rugged, IP67 rated, 2-piece aluminum enclosure. Optional fan kit, shock mount kit and interface coaxial cables are available.

- Three Models: **AR-50** (Standard), **AR-50C2** (High Input Power), **AR-50M** (MUOS Support)
- Radio vendor independent design
- Supports single & multi-band radios with just an RF connection
- Automatic high-speed filter switching for SINGARS & HAVEQUICK modes to assure interference free operation
- Dedicated LOS and SATCOM antenna ports
- Multi-level RF output power switch for SATCOM
- LOS/SATCOM LNA ON/OFF selection
- Internal LNA with co-site filtering for SATCOM
- ASCM Compatible
- JITC/DAMA Certified with AN/PSC-5D & AN/PRC-117G
- JITC/IW Certified with AN/PRC-117G



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### GENERAL SPECIFICATIONS

The general specifications listed below apply to the **AR-50 Series** of amplifiers [**AR-50, AR-50C2, AR-50M**] unless otherwise noted. **For ordering, see “Ordering Information – Model Configurations” for detailed information for specific model names**

#### **ELECTRICAL**

FREQUENCY RANGE	30 MHz – 512 MHz
POWER OUTPUT	50 Watts CW [+2/-1 dB, typical] @ 50W PEP with 80% AM modulation, <10% distortion typical
INPUT POWER RANGE CW:	5 Watts CW typical for 50 Watts Output; Protection for up to 20W CW
INPUT POWER RANGE AM:	1.5 Watt average (3 - 5W PEP) for 50W PEP output at 80% modulation
RF KEYING SENSITIVITY	1 Watt typical
T/R & FILTER SWITCHOVER TIME	SINGARS, HAVEQUICK, HPW, IW, SRW, ANW2, DAMA and ASCM
INSERTION LOSS - BYPASS MODE	1.5 dB typical (no DC power to amplifier, fault condition)
INSERTION LOSS - ACTIVE RX	2.0 dB typical (RX during active T/R switching)
MODULATION	AM, FM, or PM, and Tactical communications waveforms
DUTY CYCLE	Tactical operations
INPUT/OUTPUT IMPEDANCE	50 Ohm nominal
INPUT VSWR	1.5:1 nominal
HARMONICS	Better than -60 dBc typical
SPURIOUS OUTPUTS	Better than -70 dBc typical
Rx LNA GAIN	12 dB typical
Rx LNA NOISE FIGURE	2 dB typical
Rx CO-SITE FILTER	Band pass frequency 239 – 273 MHz, Out of band rejection 35dB typical
POWER REQUIREMENT	12 - 35.5 VDC filtered and transient protected for 12- or 24-Volt vehicle systems or dual XX90 batteries
CURRENT	7.5 Amps @ 24V typical

#### **ENVIRONMENTAL**

OPERATING TEMPERATURE	-30 to +60 °C Ambient
ALTITUDE (operating)	15,000 ft
IMMERSION (water)	IP67
VIBRATION / SHOCK / HUMIDITY / ENVIRO	Designed to meet applicable sections of MIL-STD-810F/Designed for ground/base vehicle use

#### **MECHANICAL**

SIZE (HxWxD)	2.50" x 6.00" x 7.50"
WEIGHT	4.4 lb
COOLING	Natural convection required; fan kit available (see Optional Equipment below)
RF CONNECTORS	See below – Ordering Information – Model Configurations
DC CONNECTOR	Multi-pin connector (Mating Connector Supplied)
CONSTRUCTION	Aluminum housing with integrated heatsink

#### **OPTIONAL EQUIPMENT & ACCESSORIES**

ARM MODEL NAME	DESCRIPTION
FK-AR-50	Fan Kit
SM-AR-50	Shock Mount Kit

Speak with your AR Modular RF Sales representative for additional accessories including power pig tails and other items.





**ORDERING INFORMATION – MODEL CONFIGURATIONS**

The following table provides specific details on orderable configurations of the **AR-50**. For details not listed below **General Specifications** apply.

MODEL NAME	CONFIGURATION DETAILS
<b>AR-50</b> (STANDARD CONFIGURATION, C1)	RF Connections <ul style="list-style-type: none"> <li>• Radio Port.....BNC (Female)</li> <li>• LOS Antenna Port.....TNC (Female)</li> <li>• SATCOM Port.....N-type (Female)</li> </ul>
<b>AR-50C2</b> <b>HIGH INPUT DRIVE</b> (CONFIGURATION C2)	Input Power Range CW.....8 Watts CW typical for 50 Watts Output; Protection up to 20W CW RF Connections <ul style="list-style-type: none"> <li>• Radio Port.....N-type (Female)</li> <li>• LOS Antenna Port..... N-type (Female)</li> <li>• SATCOM Port.....N-type (Female)</li> </ul> Grounding Stud.....Rear Panel
<b>AR-50M</b> <b>MUOS SUPPORT</b> (CONFIGURED FOR MUOS)	MUOS Mode offers full-duplex operation. No amplification is provided in either uplink or downlink. MUOS mode connects RADIO port to SATCOM port. Insertion Loss – MUOS.....2.0 dB typical (full-duplex radio-to-SATCOM port, MUOS) RF Connections <ul style="list-style-type: none"> <li>• Radio Port.....BNC (Female)</li> <li>• LOS Antenna Port.....TNC (Female)</li> <li>• SATCOM Port.....N-type (Female)</li> </ul>

Product outlines vary from model to model. For detailed drawings, please speak with your AR Modular RF Sales representative.

