



**MODEL AR-20B (BKT & BKT-DUAL)  
20 WATTS CW/PEP  
30-512 MHz**

The Model AR-20B is a portable, lightweight, fully automatic band-switching RF booster amplifier for use with multi-band VHF/UHF Tactical Radio equipment employing legacy, proprietary and networking waveforms. The AR-20B produces 20 Watts from a 1 to 2 Watt PEP radio input and covers the frequency band of 30-512 MHz. The unit has a wide range input DC voltage allowing operation from a single battery (XX90 battery) or 12 and 28 VDC vehicle power sources.

It also includes Over Temperature Protection, RF sensing, T/R Switching, Automatic Level Control (ALC), Harmonic Filters, Co-Site filters and protection against antenna mismatch. The amplifier is comprised of a rugged 4-piece aluminum case. The AR-20B is the simpler version of the 20W family without an LNA and power select (contact AR Modular RF for the unit with the LNA feature). Optional interface coaxial cables, DC battery cables, and kits for man-packing the amplifier are available.

**GENERAL SPECIFICATIONS**

|                        |  |
|------------------------|--|
| FREQUENCY RANGE        | 30-512 MHz   |
| POWER OUTPUT           | 20 Watts CW or PEP AM Modulation 1 kHz DOM 70%; <10% AM distortion nominal                                 |
| INPUT POWER RANGE      | Nominal 2W CW or PEP for 20W output. Up to 8W without damage   |
| RF KEYING SENSITIVITY  | <1 Watt CW typical   |
| T/R SWITCHOVER TIME    | <25 μS   |
| MODULATION             | Compatible and tested with legacy & modern complex waveforms including AM, FM, HPW, DAMA, IW, ANW2 and SRW |
| DUTY CYCLE             | Tactical operations<br>100% for networking modulations   |
| INPUT/OUTPUT IMPEDANCE | 50 Ohm nominal   |
| INPUT VSWR             | 1.5:1 nominal  |
| HARMONICS              | Better than -60 dBc typical  |
| SPURIOUS OUTPUTS       | Better than -70 dBc  |
| POWER REQUIREMENT      | 12 to 35.5 VDC single XX90 battery, 12 and 28Vdc vehicles  |
| CURRENT                | 3.2A Amps @ 24V typical  |

**ENVIRONMENTAL SPECIFICATIONS**

|                                       |  |
|---------------------------------------|--|
| 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 SPECIFICATIONS**

|               |  |
|---------------|--|
| SIZE (HxWxD)  | 1.58 x 3.75 x 5.05 inches  |
| WEIGHT        | AR-20B: 1 lb 10 oz<br>AR-20BKT: 2 lbs 15 oz<br>AR-20BKT-DUAL: 4 lbs 5 oz   |
| COOLING       | Natural convection required  |
| RF CONNECTORS | RF Input( Radio) – TNC*<br>RF Output(antenna) – TNC *<br><i>*RF connectors may be ordered in any configuration of TNC or N-type per customer's request</i> |
| DC CONNECTOR  | Multi-pin connector (Mating Connector is Optional)   |
| CONSTRUCTION  | Aluminum housing with integral heatsink  |

**OPTIONAL EQUIPMENT**

|        |                         |
|--------|-------------------------|
| BMP20K | Base Mounting Plate Kit |
| MC20   | Mating Connector        |



(AR-20B 20W amp only without LNA)

**AR-20BKT**

|        |  |
|--------|--|
| AR-20B | 20 Watts, 30-512 MHz RF Booster Amplifier  |
| BC20   | Battery Cable (22" cable connecting AR-20B to one XX90 or similar batteries)           |
| RC20   | Radio Cable (36" TNC Male to TNC Male)   |
| AC20   | Antenna Cable (36" TNC Male to TNC Female)   |
| TVP20  | Tactical Vest Pouch (Attaches to any MOLLIE/PALS style gear for holding the AR-20)     |
| ANT20  | Blade Antenna 30-512 MHz (TNC Male)  |
| TAH20  | Tactical Antenna Holder (Attaches to any MOLLIE/PALS style gear for holding the ANT20) |



(AR-20BKT)

## modular rf

### AR-20BKT-DUAL

|               |  |
|---------------|--|
| AR-20B        | 20 Watts, 30-512 MHz RF Booster Amplifier  |
| BC20          | Battery Cable (22" cable connecting AR-20B to one XX90 or similar batteries)           |
| RC20          | Radio Cable (36" TNC Male to TNC Male)   |
| AC20          | Antenna Cable (36" TNC Male to TNC Female)   |
| TVP20         | Tactical Vest Pouch (Attaches to any MOLLIE/PALS style gear for holding the AR-20)     |
| TAH20         | Tactical Antenna Holder (Attaches to any MOLLIE/PALS style gear for holding the ANT20) |
| ANT20         | Blade Antenna 30-512 MHz (TNC Male)  |
| RH-2535       | RamHead Tactical SATCOM Antenna and RF Cables  |
| SSH1031       | SATCOM Switch Holder (Attaches to any MOLLIE/PALS style gear for holding the RFS-117)  |
| SATCOM SWITCH | RF Switch Kit – LOS/SATCOM w/TNC adapter   |



(AR-20BKT-DUAL)

### MODEL CONFIGURATIONS

| MODEL NUMBER  | DESCRIPTION  | WEIGHT      |
|---------------|--|-------------|
| AR-20B        | 20W Amp only   | 1 lb 10 oz  |
| AR-20BKT      | 20W Amp with LOS antenna, cables, and pouches                    | 2 lbs 15 oz |
| AR-20BKT-DUAL | 20W Amp with LOS and SATCOM antennas, switch, cables and pouches | 4 lbs 5 oz  |



DOC # 7-98-940-910 Rev B  
18 June 2015