



VLF/LF/MF/HF/VHF Active Vertical Antenna

Models AVA-1, AVA-2, AVA-3, and AVA-4

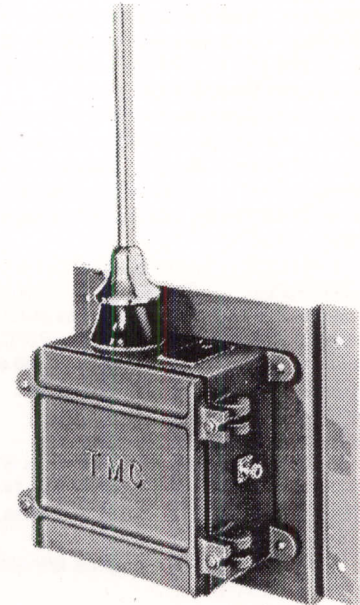
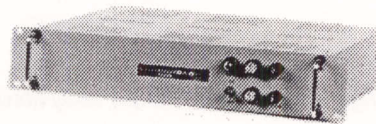
Product Bulletin 110325C

- Adjustable Antenna Mast
- Multiple Operating Ranges
- Flat Response Curve
- Rugged, Weatherproof Case

The AVA series of active receiving antennas are designed for practical communication systems where real estate is at a premium. Developed from the popular VRA series of vertical receiving antennas manufactured by TMC, the AVA provides that extra measure of gain needed to pull in weak signals in the VLF, LF, MF, HF and VHF frequency regions with minimum VSWR. Its wide dynamic range and low internal noise figure make marginal receivers perform to top-of-the-line standards.

The AVA antenna unit consists of the following: a short rod antenna acting as an E-field pick-up sensor; an input circuit used to couple the received energy to internal components; and a pre-amplifier with low internal noise. An active receiving multicoupler can be added for multiple-receiver systems. The input circuit performs double duty as a surge protector, removing much of the difficulty in operating around high-energy fields generated by static discharges and local broadcast stations. The amplifier's wide dynamic range can tolerate high-level signals with little or no evidence of overloading or intermodulation generation. The AVA generates minimal noise that is lower than the CCIR recommended atmospheric noise level. In conjunction with a suitable receiver, the AVA will bring in weak signals even on those occasions when the random noise level exceeds background noise.

TMC active vertical antennas each consist of two assemblies: the antenna unit (right) which contains the filter/preamplifier networks and the power supply which couples operating voltages on to the coaxial feed. The telescoping antenna mast can be extended from 6 to 16 feet on site.



The AVA requires less than 50 watts power to operate. An in-line coaxial supply provides operating voltages to the amplifier at the base of the antenna via the coaxial antenna feed cable. Supply voltage is applied just after the antenna input terminal of the communications receiver or the receiving multicoupler. The modest heat generated is transferred through a cast aluminum enclosure to the environment.

Several reliability features set the AVA apart from comparable antennas. It is equipped with networks to conduct high-energy fields directly to ground - effectively bypassing more sensitive circuits in the receive path and preventing permanent damage to front-end components. If power is lost, the AVA reverts automatically to its passive state without interrupting service. Input and amplifier circuits are individually sealed, shock-resistant and securely mounted internally. If damaged, each module can easily be replaced in the field.

All AVA antenna components are enclosed in a rugged, weatherproof case constructed of cast aluminum alloy and available in standard or EMI/RFI shielded versions. Except for the tongue and groove gasket channel, the external surfaces of the enclosure are painted and internal surfaces are coated with a clear iridite for maximum conductivity and protection.

Each AVA can be equipped with an active antenna multicoupler that provides up to 32 RF inputs each to associated receiving devices. Due to the design of the multicoupler, no loading occurs as a result of adding receivers in this configuration. Essentially, the AVA acts as an active vertical antenna, providing over 20dB of front-end gain, and the multicoupler provides no-loss distribution of RF to the receivers. Several different types of multicouplers are available, including 4, 8, 16 and 32-output devices in the VLF/LF, MF, HF, VHF and in the dual versions VLF/LF + HF regions.

THE TECHNICAL MATERIEL CORPORATION
COMMUNICATIONS ENGINEERS

OPERATING PARAMETERS

Frequency Range

LF/MF	AVA-1	100 - 500kHz	
HF	AVA-2	2 - 32MHz	
VLF/LF	AVA-3	10-200kHz	
VHF	AVA-4	30-500MHz	10-200/2-30

Note: Operating ranges can be combined in one unit.

Nominal Gain +15 dB +/-0dB

Noise Figure Less than 7dB across band

Impedance Matches into 50 ohms nominal

RF Fittings - Unbalanced Input/Output

BNC, C, HN, LC, N, UHF, RG-85/U (See listing below)

Multicoupler Distribution (option)

Multicouplers distribute the RF from one AVA system to 4, 8, 16 or 32 communication receivers simultaneously. See Related Equipment (listed below) for selected models.

Primary Power 110/230VAC, 50/60Hz, single-phase
External terminals for 28VDC (1.5A) operation.

Antenna Mast

AVA-[1][3] Aluminum, 6/16-foot telescopic

AVA-[2][4] Aluminum, 6/12-foot telescopic

Note: Fiberglass and stainless steel masts are also available.

Operating Conditions -40°C to +75°C; Up to 95% RH

Enclosure Features All-weather cast aluminum alloy case.
Tongue-and-groove rubber gasket seal.

Enclosure Dimensions

Antenna (case only - less mast):

10.0H x 9.8W x 6.3D inches, 31 Pounds

25.5H x 25.0W x 16.0D cm, 14.1 Kg.

Supply: 3.50H x 19.0W x 10.0D inches, 10 lbs

SPECIAL FEATURES

Operation and Safety

- Input network protection from surge, static discharge.
- Automatic reversion to passive state if power is lost.
- Internal modules anchored to resist shock.

Mounting Bulkhead mount using 13 x 16-inch flanged plate.
Optional pole mount using four mounting flanges.

Finish External surfaces painted gray-beige or gray-blue.
Internal surfaces coated with clear iridite.

Ordering Information

AVA-1	LF/MF Active Receiving Antenna
AVA-2	HF Active Receiving Antenna
AVA-3	VLF/LF Active Receiving Antenna
AVA-4	VHF Active Receiving Antenna

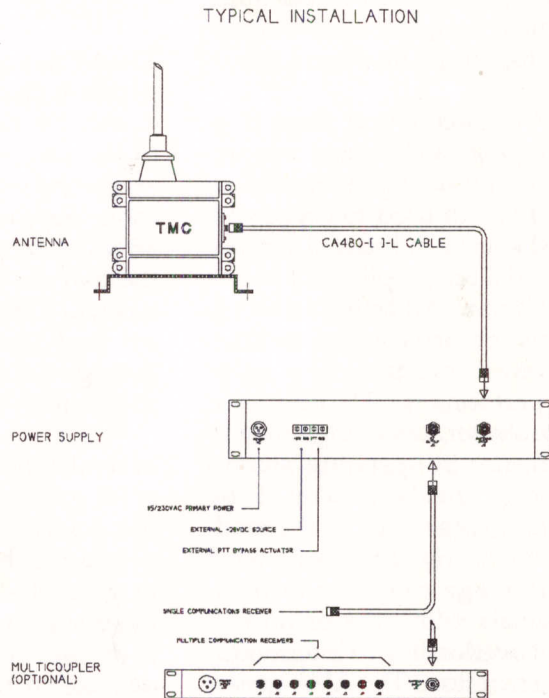
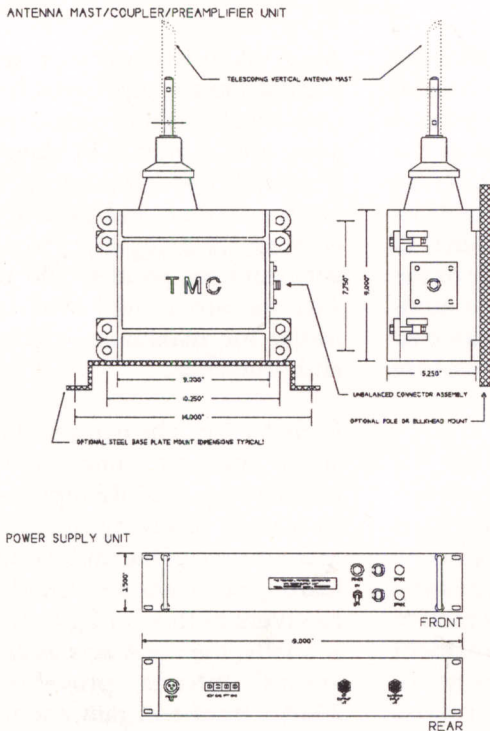
Optional Connector Assemblies

/BNC	BNC-type	TMC P/N
/C	C-type	AX284-1
/HN	HN-type	AX285-1
/LC	LC-type	AX287-1
/N	N-type	AX259-1
/RG85	RG85/U flange	AX274-1
/UHF	UHF-type	AX281-1

Related Equipment

AMC-[4][8][16][32]	HF receiving antenna multicoupler
CA480-[x]-[L]	RF coaxial cable
LMC-[8][16][32]	LF/MF receiving antenna multicoupler
PPS-100	Receiving pre-selector/post-selector

Specifications are subject to change without notice - Please verify accuracy with TMC before ordering.



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