



AMM200

ANALOG AUDIO PREAMPLIFIER, METER and MONITOR

OPERATING AND MAINTENANCE MANUAL



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DESCRIPTION

The AMM200 Analog Audio Preamplifier, Meter and Monitor is a full-featured stereo line amplifier and monitor with balanced/unbalanced bridging XLR line inputs and amplified servo-balanced/unbalanced line outputs plus stereo headphone drivers and a stereo LED meter. The bright two-color LED meter is switchable to measure either the line input or line output levels. Ballistics are selectable for either peak or average meter response. The meter covers a wide dynamic range of -15 to $+12$ dB in ten 3dB steps. Switched rear panel RCA jacks allow external self-powered speakers to be controlled from the headphone drivers.

The AMM200 can be used free-standing, desk mounted or rack mounted up to three across in one rack unit (1-3/4"). Optional field cases, protection plates and battery power packs are available (see Field Accessories).

PERFORMANCE

The AMM200 provides dynamic range in excess of 114dB and THD below 0.1% measured at the analog line and headphone outputs for all levels below clipping. All measurements are noise limited at -90 dB EIN (20Hz to 20kHz bandwidth). Frequency response is $+0 / -.25$ dB, 20Hz to 20kHz.

LINE INPUTS

The AMM200 accepts balanced or unbalanced stereo audio signals from XLR female connectors. Nominal input levels at -20 dBu (.07Vrms), -10 dBu (.25Vrms) or $+4$ dBu (1.23Vrms) can be selected by moving internal jumper plug J9 to the desired position. 20Kohm balanced instrumentation amplifier inputs accept input levels up to $+22$ dBu. Higher inputs result in clean clipping with no phase reversal.

LINE OUTPUTS

Analog line level outputs for balanced or unbalanced audio lines of 600 ohms or greater impedance are available on rear XLR type connectors. Ground sensing output drivers (U7, U8) allow either the HI or LO output lines to be grounded for connection to unbalanced loads. Grounding one side of an output pair shuts off drive to the grounded line and doubles the output signal on the ungrounded side, thus maintaining normal circuit operation and gain. Front panel trimpots set the nominal line output level to $+4$ dBu (1.25V) at 0dB on the line output meter, which allows 18dB headroom up to the peak output level of $+22$ dBu. Up to 43dB of gain is available from line input to output. Frequency response is flat within .25dB from 20Hz to 20kHz and THD is well below 0.1% over the same frequency range at any output level below clipping. Output noise is below -90 dBu at unity gain.

HEADPHONE OUTPUTS

A high compliance stereo headphone driver (U9, U10) is controlled by the front panel **PHONES** volume control. The headphone amplifier will drive up to 20Vp-p into high impedance headphones and up to 120mA-p-p into low impedance headphones. The headphone output will provide a comfortable listening level of 1mW at 12 o'clock on the volume control for most headsets. The amplifier is capable of driving many headsets up to DANGEROUS LEVELS over 120dB SPL. If you can hear distortion, it's TOO LOUD and can cause PERMANENT HEARING DAMAGE! The AMM200 is designed to drive TRS (Tip-Ring-Sleeve) connected stereo headphones between 32 and 600 ohms impedance. Do not use TS connected mono headphones. Rear panel RCA type jacks can route the headphone signals to external self-powered loudspeakers. The external speakers are switched off when headphones are plugged into the front headphone jack.

METERING

The AMM200 allows front panel selection of input or output metering and also selection of peak or average display ballistics. The **INPUT** mode measures the normalized output of the input instrumentation amplifier and is calibrated (internal adjustments M2L, M2R) to indicate 0dB at inputs of +4dBu, -10dBu or -20dBu input as selected by jumper J9.

The **OUTPUT** mode meters the audio line output and is calibrated to read 0dB at +4dBu line output level with internal calibration adjustments M1L and M1R. The meter scale measures 12dB above and 15dB below the 0dB point in ten 3dB steps.

The ballistics of the meter displays are designed to closely follow the requirements of DIN45406 for PPM response in the **PEAK** mode and to approximate a VU meter in the **AVERAGE** mode.

POWER

The AMM200 operates from an external 24VDC power module and draws up to 0.2 amp. Loop-thru DC connectors allow you to operate multiple AMM200 units from a single power module. Allow one power module for every two AMM200 products. Use power modules WA100-1 for 120VAC (supplied as standard) or WA100-2 for 230VAC and DC power cable loop-thru 20602-1. A front panel **POWER** switch and Red LED indicator are provided.

SIZE AND RACK MOUNTING

1.72" (4.45cm) H X 5.75" (14.6cm) W X 6.0" (15.2cm) D; 1.5 lbs (0.7kg) net weight. AMM200 units can be mounted up to three across in one vertical 1-3/4" rack space using accessory rack mount kits. Stacking and angled desk mount kits and field carry bags with battery packs are also available.

POWER SUPPLIES & LOOP-THRU CABLE

The AMM200 is supplied with an external 24VDC power supply, as follows:

- WA100-1 Wall mount power supply (UL, CSA), 24VDC at .4A output, 115VAC/60Hz, and 16VA input, supplied as standard
- WA100-2 Tabletop supply, IEC320 AC connector, 24VDC at .4A out, 230VAC/50Hz, 16VA input, optional at extra cost
- 20602-1 Loop-thru DC interconnect cable, 13" (33cm) long

DESK MOUNT KITS:

- 20617-501 Angled desk mount base for one unit
- 20617-502 Angled desk mount base and stacker for two units
- 20617-503 Angled desk mount base and stackers for three units

RACK MOUNT SYSTEM:

- 21075-501 Mounts three units in a single 19" 1RU rack space
- 20197-501 1/3 Rack Filler Panel

FIELD ACCESSORIES

- PROK-1 Protection kit consists of a set of rugged side plates, which protect the front panel controls and rear connectors from impact damage. Side plates also allow attachment of a carry strap (not included). Slide brackets mount PPA-1, DCA100-1 or BBU100-1 field power modules and allow quick interchange.
- ABAG-1 Carry case with shoulder strap houses products plus power modules. Attaches to PROK-1 protection plates (included). Allows easy access to battery modules.