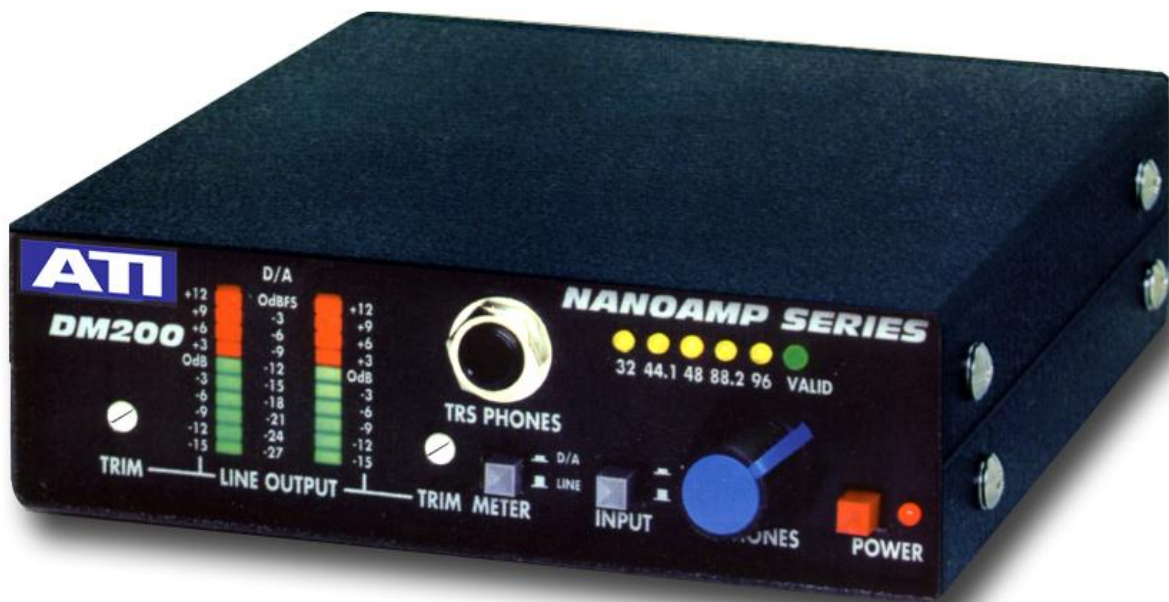




DM200

DIGITAL AUDIO MONITOR

OPERATION AND MAINTENANCE MANUAL



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DESCRIPTION

The DM200 monitors AES/EBU, IEC958 and S/PDIF formatted digital audio signals. It provides a 24 bit, 27-to-96kHz Digital-to-Analog converter feeding a high quality stereo headphone amplifier for audible monitoring and quality assessment. The DM200 also includes a balanced 600 ohm stereo line level output to drive external power amplifiers, console inputs, etc.

The DM200 allows you to meter digital headroom (down from 0dBFS) to warn of possible overdrive at the signal source. The balanced audio line output is also metered with a conventional reference level of +4dBm at 0dB on its meter scale.

The DM200 can be used free-standing, desk mounted or rack mounted with other NanoAmps 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 DM200 provides dynamic range in excess of 90dB (IEC-A weighted) and THD below .01 % measured at the analog line outputs for all but the lowest sampling rate of 32kHz. All measurements are noise limited at -90dB (20Hz to 20kHz bandwidth). Response is $\pm .25$ dB, 20 to 20kHz, at all but the lowest sampling rate.

INPUTS

The DM200 accepts AES/EBU and SP/DIF digital audio signals from either an XLR female 110 ohm line or a BNC or RCA 75 ohm line as selected by the front panel INPUT switch. Inputs from .10 to 10Vp-p are properly detected. The selected digital input is transformer isolated, floating and DC blocked to eliminate ground loop hum and jitter. All inputs are properly terminated for minimum signal reflection when the rear panel INPUT termination switch is activated.

The XLR female digital input loops-through to an XLR male output connector. BNC and RCA inputs also simultaneously loop-through to the BNC/RCA outputs. Opening the rear panel termination switch allows the DM200 to bridge loop-through digital lines without loading. The last device should always terminate the line; therefore, press the Termination Switch IN if you are not using the loop-thru outputs.

RECEIVER

The DM200 handles incoming digital audio at sampling rates from 27kHz to 100kHz. The digital receiver circuit, U1, a Crystal Semiconductor CS8414, automatically recovers the clock from the input data and illuminates a yellow LED to indicate the received standard sample rate (Fs) of 32 to 96kHz. The receiver circuit outputs serial data (SDATA), serial clock (SCK) and frame sync

(FSYNC). FSYNC is configured as left/right clock (LRCLK). The receiver master clock output (MCK) is divided in U3 and becomes MCLK to the D/A converter at 128XFs.

DIGITAL-TO-ANALOG CONVERTER

U5 is a Crystal Semiconductor CS4334, 96kHz, 24bit D/A Converter. The CS4334 is rated at over 90dB dynamic range and -88dB THD+N ratio (.004%). The CS4334 utilizes the latest one-bit, delta-sigma (or sigma-delta if you are west of the Mississippi) D/A converter technology driving an ultralinear internal analog low pass filter. The converter does not provide digital de-emphasis.

HEADPHONE DRIVER

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 phones and up to 120mAp-p into low impedance phones. The headphone output will provide a comfortable listening level of 1 mW 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! BE CAREFUL! Treat your ears with tender loving care and they will follow you anywhere. The DM200 is designed to drive TRS (Tip-Ring-Sleeve) connected stereo headphones between 32 and 600-ohm impedance. Do not use TS connected mono phones.

LINE OUTPUTS

Analog line level outputs for balanced or unbalanced audio lines of 600 ohms or greater impedance are available on a two-piece Phoenix type rear connector. Ground sensing output drivers (U7, U8) allow either the HI or LO output line to be grounded by 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 +4dBu (1.25V) at 0dB on the line output meter that allows 18dB headroom up to the peak output level of +22dBu.

METERING

The DM200 allows front panel selection of two metering modes. The D/A mode measures the direct output of the D-to-A Converter and is calibrated (internal adjustments M2L, M2R) to just indicate 0dBFS maximum at full digital input count. 0dBFS on the D/A meter corresponds to +22dBu line output level. The D/A scale measures 9 additional 3dB steps down from 0dBFS to -27dB.

The LINE 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 LINE meter scale measures 12dB above and 15dB below the 0dB point.

The ballistics of the meter displays are designed to closely follow the requirements of DIN45406 for PPM response in order to best indicate audible peaks.

DISPLAY INDICATORS

The DM200 displays the input signal sample rate F_s (if within +1 to -4% of the standard frequency) on a set of five front panel yellow LED indicators (32, 44.1, 48, 88.2 and 96kHz). A green DATA VALID LED indicates that the received data was correct when sent and that there has been no subsequent parity or bi-phase coding violations or an out-of-lock PLL clock receiver. Out-of-range or no-signal conditions blank all indicators.

POWER

The DM200 operates from an external 24VDC power module and draws up to .2A. Loop-thru DC connectors allow multiple NanoAmps to operate from a single power module. Allow one power module for every two DM200 NanoAmps. Use power modules WA100-1, WA100-2 and loop-thru cables 20602-1.

A front panel POWER switch and Red LED indicator are provided.

SIZE in (cm) 1.72 (4.45) H x 5.75 (14.6) W x 6.0 (15.2) D

WEIGHT 3 lbs.(1.4 kg) Shipping Weight

MOUNTING The DM200 can be mounted up to three across in one vertical 19-inch rack space using accessory rack mount kits. Stacking and angled desk mount kits and field carry bags are also available.

POWER SUPPLIES

WA100-1 Wall mount power supply (UL, CSA), 24VDC at .4A output, 115VAC/60Hz, supplied as standard

WA100-2 Universal wall mount power supply with interchangeable AC mains connectors, 24VDC at.4A out, 90-264VAC, 47-63Hz, optional at extra cost

20602-1 Loop-thru DC interconnect cable, 13" long

RACK MOUNT KITS

20617-501 Angled desk mount base

20617-502 Angled desk mount base and one stacker (2 units high)

20617-503 Angled desk mount base and two stackers (3 units high)

RACK MOUNT SYSTEM

21075-501 Mounts 3 units side-by-side in 1RU
21097-501 1/3RU 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 PPA100, DCA100 or BBU100 field power modules and allow quick interchange.

ABAG-1 Carry case with shoulder strap houses NanoAmp Series products plus power modules. Attaches to PROK-1 protection plates (included). Allows easy access to battery modules.

One Year Limited Warranty

ATI warrants this product to be free from defects in materials and workmanship to its original owner for a period of one year from date of purchase. ATI will repair or replace such product or part thereof, which upon inspection by ATI, is found to be defective in materials or workmanship.

The Proper Return Authorization Number must be obtained from ATI in advance of return. Contact ATI at 856-626-3480 or email sales@ataudio.com to receive the number and instructions for return of your unit.

A written statement providing the name, address, daytime telephone number and email address of the original owner, together with receipt from the original purchase, and a brief description of any claimed defects, must accompany all returns. Parts or product for which replacement is made shall become the property of ATI.

The customer shall be responsible for costs of transportation and insurance to the factory of ATI, and shall be required to prepay such costs.

ATI shall use reasonable efforts to repair or replace any product covered by this limited warranty within thirty days of receipt. In the event repair or replacement shall require more than thirty days, ATI shall notify the customer accordingly. ATI reserves the right to replace any product that has been discontinued from its product line with a new product of comparable value and function.

This warranty shall be void in the event a covered product has been damaged, or failure is caused by or attributable to acts of God, abuse, accident, misuse, improper or abnormal usage, failure to follow instructions, improper installation or maintenance, alteration, or lightning, power fluctuations and other incidental or environmental conditions. Further, product malfunction or deterioration due to normal wear is not covered by this warranty.

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This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

ATI reserves the right to modify or discontinue, without prior notice to you, any model or style product.

If warranty problems arise, or if you need assistance in using your product contact us.