

BELAR "THE WIZARD" PRECISION DIGITAL AM MODULATION MONITOR/ANALYZER

AMMA-2



DESCRIPTION

The AMMA-2 is a DSP-based, microprocessor-controlled, digital AM modulation monitor/analyzer that precisely measures positive and negative peak modulation, peaks per minute, average peak modulation, modulation density, and more. In addition to monitoring standard AM modulation, the AMMA-2 accurately monitors modulation-dependent carrier level (MDCL) AM transmissions. During MDCL broadcasts, the RF carrier level becomes a dynamic component of the AM signal. The AMMA-2 tracks the carrier, capturing the highest and lowest values of the carrier level, as well as the decibel ratio of the carrier high/low. Modulation readings are referenced to the carrier level appropriate for the MDCL system in use. The optional remote meter panel displays positive modulation, negative modulation, and carrier level simultaneously on three large analog meters.

The AMMA-2 features user-defined parameters and settings for maximum flexibility. Two large UP/DOWN MENU keys are used to cycle the 16-character alphanumeric display to the desired menu; the UP/DOWN PARAMETER keys are then used to select the desired setting. The unit configuration may be saved to the on-board non-volatile memory so the settings are retained in the event of a power loss.

A noise menu selection displays RMS-detected SNR in decibels (flat or de-emphasized) on the front panel.

A carrier cutoff indicator consisting of three front panel LEDs continuously monitors the approach of negative modulation to carrier cutoff.

A unique "Normal Modulation" indicator shows when modulation is falling within user-defined parameters.

A built-in Audio Sentry audio failure alarm alerts you to loss of modulation or drops in modulation level.

An RS-232/RS-422 port allows the AMMA-2 to be accessed via personal computer. The ASCII command set, documented in this manual, provides an easy way for users to write their own command and control software. Alternately, the AMMA-2 will be supported in the future by The Wizard Software, which provides unit control and graphing and logging capability for all the AMMA-2 measurements.

A remote alarm connector, consisting of 8 pairs of relay contacts, provides alarm status information for hard-wired applications. NRSC de-emphasis may be selected internally by moving a jumper plug.

Specifications are subject to change without prior notice.



BELAR ELECTRONICS LABORATORY, INC.

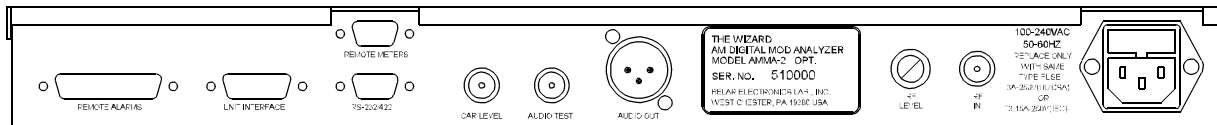
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Manufactured in the U.S.A.

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MEASUREMENTS

- Positive Peak Modulation in Percent
- Negative Peak Modulation in Percent
- Positive Peaks-per-Minute Count
- Negative Peaks-per-Minute Count
- Positive Peak Average & Peak Min Modulation
- Negative Peak Average & Peak Min Modulation
- Positive Average/Peak Modulation Ratio
- Negative Average/Peak Modulation Ratio
- Normal Modulation Peaks-per-Minute Count
- AM Noise rms detected in dB
- Carrier Level
- Carrier Reference
- Carrier High in sliding 1 minute window
- Carrier Low in sliding 1 minute window
- Carrier Ratio High/Low in dB

SETTABLE PARAMETERS

- Positive & Negative Peak Modulation Indicator
- Positive & Negative Peaks/Minute Indicator
- Normal Modulation Indicator
- Positive & Negative Peaks/Minute Duration
- Audio Failure Alarm - Time & Modulation
- Modulation Mode(Normal/Fixed/MDCL/IMOD)
- MDCL Reference
- Carrier Shift Alarm
- Carrier Failure Alarm - Time & Level
- Display Hold Time
- Time Mode (Real/Past)
- Infinite Hold
- Audio Outputs(Test/Meter)
- Modulation Calibrator
- Tuning Frequency
- Tuning Mode(Dir/Auto/Scan/Lock)
- Tuning Frequency Increments

SPECIFICATIONS

RF Frequency Range 150 kHz to 30 Mhz
RF Tuning Increments 1 kHz
RF Sensitivity 1 to 10 volts rms
RF Input Impedance 500 ohm or 50 ohm
internally connected

Accuracy 1.0%
Display Large 3 digit LED
for Negative Modulation
16-character alphanumeric LED display
for menus and parameters
Frequency Response ± 0.1 dB, 30 Hz to 10.2 kHz
-3 dB @ 11.9 kHz
-100 dB @ 16 kHz

Audio Outputs

Audio Monitor +10 dBm, 600 ohm, balanced (XLR)
Audio Test 2.5 Vrms unbalanced (BNC)
Frequency Response ± 0.1 dB, 30 Hz to 10.2 kHz
Distortion $\leq 0.1\%$ @ 99% modulation
IMD (SMPTE, CCIF and DIM) . $\leq 0.1\%$ @ 99% modulation
Signal to noise ratio 75 dB
Signal Delay Test 3 ms, Meter 90 ms

Automatic Carrier Level Adjustment range 25-150%

Remote Meter Output Jack for optional MP-17
analog remote meter panel

Remote Alarms Relays for Loss of Modulation
Normal, Negative PPM, Positive PPM
Loss of Carrier, Remote, General Alarms
Relays can be set NO or NC

Serial Interface RS-232/RS-422
Unit Interface Wizard Standard Interface
Power Requirements 20 watts, 100-240 VAC, 50/60 Hz
Dimensions 1 3/4"H x 19"D x 19"W
(EIA rack mount)

Shipping Weight 10 lbs

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