

DESCRIPTION

The FMSA-1 is a DSP-based, microprocessor-controlled, FM Stereo Modulation Monitor/Analyzer. The FMSA-1 digitizes the composite baseband signal and decodes the stereo multiplex portion using digital signal processing techniques. Unlike an analog design, a DSP-based design is immune to variations due to temperature or the aging and tolerance of components. As a result, the FMSA-1 attains superlative performance while requiring virtually no adjustment. By employing linear-phase FIR filters, the FMSA-1 eliminates phase distortion in the recovered audio. This permits unprecedented accuracy in measuring modulation peaks on the Left, Right, L+R and L-R signals. These performance advances result from the mathematically pure demodulation algorithm implemented by the FMSA-1 processors.

All FMSA-1 measurements—peak modulations, injections, and dB ratios—are displayed on digital readouts. The readings can also be viewed remotely on a virtual front panel when the FMSA-1 Digital FM Stereo Monitor/Analyzer is used in conjunction with the Belar Wizard FMMA-1 FM Digital Modulation Monitor/Analyzer and a personal computer. Remote operation of the FMMA-1/FMSA-1 pair in tandem with an automatic audio analyzer facilitates a fully automated stereo proof-of-performance.

The FMSA-1 features user-defined parameters and settings for maximum flexibility. The two UP/DOWN menu keys are used to cycle the 16-digit alphanumeric display to the desired menu; the UP/DOWN parameter keys are then used to select the desired setting. The configuration can be saved to non-volatile memory in the unit in the event of a power loss.

FEATURES

When used in combination with the Belar FMMA-1 Wizard and The Wizard Software, the FMSA-1 offers unusual flexibility in remote as well as on-site monitoring. The Wizard Software transforms an ordinary PC into a powerful tool for the real-time graphic display and logging of modulation parameters. When tied to the companion FMMA-1—directly or through modems and a standard phone line—the PC can interrogate and control all functions of the FMSA-1. Passwords allow the restriction of control at three levels.

With the addition of the Belar RFA-4 Frequency Agile FM RF Amplifier to the monitoring system, The Wizard Software permits the remote selection of monitored stations from among 10 preset frequencies or those entered directly by the user. Call letters of preset stations appear on the computer screen for easy identification. Users may also write their own software for controlling and interrogating the FMSA-1 directly through its own RS-232 port.

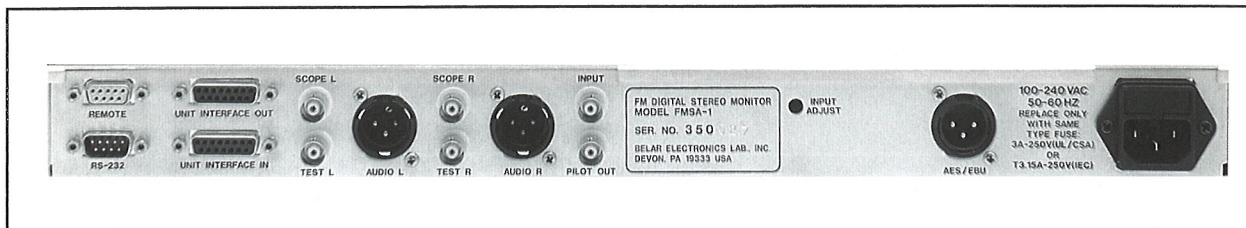


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MEASUREMENTS

- Total Peak Modulation in Percent or dB
- Left Channel Modulation in Percent or dB
- Right Channel Modulation in Percent or dB
- L + R Modulation in Percent or dB
- L - R Modulation in Percent or dB
- Pilot Modulation in Percent
- Pilot Injection in 0.1 Percent
- Direct Reading Separation in dB
- Crosstalk in dB
- 38 kHz Subcarrier Suppression in Db

All dB measurements can be made with or without de-emphasis.

SETTABLE PARAMETERS

- Hold Time
- Time Mode (Real/Past)
- Display Hold
- Remote Enable
- Crosstalk (Direct/Matrix)
- 75/50 microsecond De-emphasis

SPECIFICATIONS

Input Level 2.8V- 5.7V P-P composite
 Input Impedance 100 K Ω , unbalanced,
 BNC connector
 Display Two large 3 digit 7 segment LED for
 Left and Right (or L+R and L-R) Modulation
 16 segment alphanumeric LED display
 for menus and parameters
 Modulation Display Range 0-127%
 in 1% increments, accuracy $\pm 0.5\%$
 Pilot Injection Range 0-12.7%
 in 0.1% increments

Outputs

Pilot 2V P-P, 500 Ω , unbalanced
 Left and Right
 Audio (Program) +10 dBm, 600 Ω , balanced
 Test 2.5 Vrms, 75 Ω unbalanced
 Scope 1.3 Vrms, 75 Ω unbalanced
 Digital AES/EBU, 48 kHz

Separation

Left to Right 80 dB, 10 Hz to 15 kHz
 Right to Left 80 dB, 10 Hz to 15 kHz

Crosstalk:

L + R to L - R, L + R to L - R (matrix) 80 dB min
 L + R to L - R, L + R to L - R (direct) 90 dB min
 SCA to L + R 90 dB min
 SCA to L - R 90 dB min
 SCA Interference 90 dB min

Serial Interface RS-232
 Unit Interface Wizard Standard Interface
 Remote Meter Outputs:
 Left Channel Analog Meter,
 Right Channel Analog Meter,
 Pilot LED, Pilot Relay for interface to
 Model MP-15 Analog Meter Panel (optional)

Audio Output Specifications

Frequency Response,
 Left and Right ± 0.05 dB flat, 50 to 15 kHz
 ± 0.25 dB de-emphasized
 Signal-to-Noise Ratio, with de-emphasis
 Left and Right 90 dB
 Harmonic Distortion 0.01% max, 50 to 15 kHz
 Intermodulation Distortion 0.01% max (SMPTE)

Dimensions 1 EIA Rack Unit
 1.75"H x 14"D x 19"W
 Power Requirements 25 watts, 100-240 VAC,
 50-60 Hz
 Shipping Weight 12 lbs

Specifications are subject to change without prior notice.



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Where Accuracy Counts . . . Count on Belar

Manufactured in the U.S.A.