



FEATURES

- Direct Sampling of FM RF Carrier
- Frequency Agile RF Input
- AM & Sync AM Noise Measurements
- Variable Bandwidth Digital IF Filtering
- Digital FM Demodulation with 100 dB 75 μ s SNR
- Variable BW Composite Filtering
- Digital Stereo Demodulation with 100 dB L/R Separations
- Full Metering of Analog Peak and RMS Values
- RDS Injection, Phase and Full Data Decoding
- Two Digital SCA Decoders
- RF, Composite and Audio FFT Spectrum Analysis
- RJ - 45 Ethernet Interface with Remote PC Software
- De-emphasis Assignable, 50 μ s & 75 μ s

DESCRIPTION

The Belar FMCS-1 provides a complete solution for the Analog portions of the FM signal. The unit combines the features and functions of an RF amplifier, FM demod, stereo demod, RDS decoder, SCA decoder, and FFT spectrum analyzer in one product. Using state of the art DSP techniques all of FMCS-1 processing takes place in the digital domain, this results in FM analog performance that was previously not possible.

The Belar FMCS-1 All-in-One FM Modulation Monitor is a wideband FM monitor which meets the Federal Communications Commission requirements for measuring the total modulation characteristics of monaural as well as the stereo modulation characteristics of multiplexed FM transmitters. The FMCS-1 measures modulation and provides high quality outputs for all the services available on conventional analog FM broadcast stations operating in the 88 MHz to 108 MHz band. On board processing provides spectral analysis of the pre demodulation and post demodulation signals. Internally generated calibration signals permit checking monitor accuracy at any time. Communications ports and a graphical user interface enable local or remote operation of the FMCS-1 via an external PC.



Specifications are subject to change without prior notice.



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SPECIFICATIONS

RF Inputs

Frequency Range 87.3 to 108.1 MHz, Frequency Agile
 100 kHz Increments
 High Level Input 400 mVrms to 3.5 Vrms, 50Ω, BNC Connector
 Antenna Input 100 μ V sensitivity, 75Ω, F-Type Connector
 500 mVrms Maximum

FM Demod

Frequency Response ± 0.01 dB, 10 Hz to 100 kHz
 SNR 100 dB, 75 μ s de-emphasis
 Distortion 0.001%, 75 μ s de-emphasis

Stereo Decoder

Frequency Response (L and R) ± 0.1 dB, 10 Hz to 15 kHz
 SNR (Stereo) 90 dB, 75 μ s de-emphasis
 Distortion 0.001%, 10 Hz to 15 kHz, 75 μ s de-emphasis
 Separation
 L to R, R to L 100 dB, 10 Hz to 15 kHz
 Crosstalk
 L+R to L-R 100 dB min
 L-R to L+R 100 dB min
 SCA to L+R 100 dB min
 SCA to L-R 100 dB min

FFT Spectrum Analysis (RF, Composite, Audio)

Display Modes Realtime, Peak Hold, Average, Infinite Hold

Amplitude

Number of Points 181
 Scale +100.0 to -150.0 dB adjustable
 Resolution 0.1 dB

Frequency

Number of Points 501
 Resolution BW
 RF 25, 50, 100, 250, 500, 1000, 1500, 2000, 2500 Hz
 Composite 5, 10, 25, 50, 125, 250 Hz
 Audio 1, 2, 5, 10, 25, 50 Hz

Metering

Modulation (Peak, Ave, Min)

Total, L, R, L+R, L-R 0 to 150%, 0.1% resolution
 Pilot 0 to 15.0%, 0.1% resolution

RMS

Total, L, R, L+R, L-R +3.0 to -120.0 dB, 0.1 dB resolution
 Flat & 50 μ s or 75 μ s
 AM Noise, Sync AM Noise 0.0 to -100.0 dB, 0.1 dB resolution
 Separation 0.0 to -120.0 dB, 0.1 dB
 Crosstalk 0.0 to -120.0 dB, 0.1 dB resolution

Indicators

Total Peak Modulation ! L+R Presence ! RF Presence ! Pilot Presence ! RDS Sync & Presence ! SCA #1 Peak and Presence ! SCA #2 Peak and Presence ! AM Noise Limit ! SYNC AM Noise Limit

Composite Outputs

Analog (2 buffered) 1.5 Vrms @ 100%, 75Ω unbalanced
 BNC Connector
 Digital (2 buffered) LVDS, 100Ω, RJ-45 Connector

Audio Outputs

Analog Outputs (6 assignable) +10 dBm, 600Ω balanced
 XLR Connector
 Analog Outputs (2 assignable) 5 Vrms, 75Ω unbalanced
 BNC Connector
 AES-3ID (8 assignable) 1.0 Vpk-pk, 75Ω, BNC Connector
 Headphone (assignable) 1/4" Phone Jack

Alarm Outputs

Relays (4 assignable) FORM C, 15-pin Female D-Sub Connector

Computer Interface

USB Port
 Ethernet 10/100 Base -T RJ-45 Jack

Dimensions 19"x3.5"x14.5", 2 EIA Rack Units

Power Requirements 40 Watts, 100-240V
 50/60 Hz

Shipping Weight 15 lbs (6.8 kg)

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