



716

Integrated FM Stereo Generator/Audio Processor

- A new integrated audio processor/stereo generator for all FM stereo broadcasting applications
- Digital Synthesis of the Composite Multiplex for best separation and stable operation
- Feedforward Pulse Width Modulation (PWM) audio processing imparts loudness and fullness to the program signal with negligible artifacts and without sacrificing brilliance
- Unique "bass-enhanced" feature optionally suppresses sub-audible program components while augmenting legitimate "bottom end"
- Internal combining for SCA or RDS subcarriers
- New synthesis techniques and phase-linear filtering ensure a clean output spectrum that will not interfere with low-injection digital subcarriers or analog SCAs
- Stereo Audio Processing includes Slow-AGC, Dynamic Compression and Peak Limiting
- Single-knob control adjusts program density
- Patented overshoot compensation circuits and an adjustable pre-pilot clipper yield consistently high average modulation
- Easy to set up, easy to use. Generic components are used throughout for ease in servicing, anywhere in the world

The 716's comprehensive Audio Processing section combines the functions of a gated, gain-riding AGC with split-spectrum dynamic compression and peak control. The result is a signal which is both "competitive" and fully protected from overmodulation. A single panel control gives the user a wide latitude of adjustment range over program dynamics, from a natural, unprocessed sound to a very aggressive one.

The Stereo Generator section features digital synthesis of the composite signal with its inherently superior stability and performance. Internal combining for SCA or RDS subcarriers is provided.

Frequency Response:	±0.5 dB, 20 Hz to 16 KHz; -60 dB or better at 19 KHz
Stereo Separation:	Better than 60 dB, 20 Hz to 16 KHz
Distortion:	With processing engaged, <0.15% THD in baseband and subcarrier at 95% modulation
Noise:	-75 dB or better below 100% modulation in demodulated audio. Any "digital" noise components above 54 KHz are -70 dB or better.
Crosstalk:	Better than -50 dB at 100% modulation
Pilot:	19 KHz, ±1 Hz; level adjustable between 6% and 12%, relative to 100% modulation. <1% THD in pilot signal (distortion products better than 60 dB below 100% modulation).
Line Inputs:	LEFT and RIGHT Line Inputs are active-balanced/bridging; accept line input levels between 15 dBu and +15 dBu for 100% modulation. 30 dB range is divided into two 15 dB-range jumpering options.
Subcarrier Input:	Single-ended (unbalanced) input accommodates SCA or RDS subcarrier signals at levels between -20 dBu and 0 dBu for nominal 5% to 10% injection
Primary Low-Pass Filtering:	7-pole, phase-corrected, active-elliptic "FDNR" low-pass with proprietary filter overshoot compensation circuitry
Preemphasis:	Integral to split-spectrum audio processing circuitry; may be jumpered for 75 µs or 50 µs characteristic
AGC Amplifier:	Slow (0.5 dB/sec.) correction for long-term input level variations; ±10 dB capture range displayed by LED indicators.
Compressor / Limiter:	Fast-acting peak limiter has "platform" time constant to compress dynamic range with average-value weighting. Independent high-frequency limiter conforms to selected preemphasis characteristic. LED's indicate peak and H.F. limiter action and compressor gain state. DENSITY control alters time constants and platform values.
Signal Clipping:	Program signal clipping is generally relegated to nonrepetitive limiter overshoots of 1 ms or less duration. "Safety" clipping of the Composite output signal is performed prior to stereo pilot insertion.
Composite Output:	Single-ended (unbalanced), "zero" (voltage source) impedance. Level adjustable between -5 dBm and +12 dBm (0.5 - 3 V RMS, or 1 - 8 V p-p).
19 KHz Sync Output:	TTL-level symmetrical squarewave, in-phase with 19KHz Stereo Pilot
Digital Synthesis Sampling Rate:	680 kHz (16X subcarrier oversampling)
Power Requirement:	105 - 130 VAC or 210 - 255 VAC, 50/60 Hz; 20 Watts
Size and Weight:	1.75" H x 19" W x 6" D (1U); 7 lbs. (shipping)

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