



FM BROADCAST EXCITER

Model 695 Series

QEI advanced technology FM Exciters for outstanding audio performance. The **Model 695** continues the tradition of superior performance and *reliability* set by its legendary predecessor the venerable Model 675. QEI took this time-proven exciter design and has refined the system to deliver un-compromised performance for today's FM broadcast station.

The **Model 695** FM is an "all solid state, on carrier direct FM, phase locked, frequency synthesized exciter", designed to exceed the FCC requirements for use in the FM broadcast band.

The **Model 695** exciter may be programmed to operate on any 100 kHz increment in the FM band (10 kHz steps optional). Direct FM "On Carrier" operation insures spurious free transmission and extremely low distortion, crosstalk, noise, and no stereo degradation. The frequency modulated oscillator (FMO) of the **Model 695** has superior linearity and does not require any "pre-distortion" networks. *Sound for sound the **Model 695** will match other FM exciters costing twice as much or more.* The FMO is sealed in steel and foam to shield it from stray magnetic fields and eliminate microphonics.

The Power Amplifier (PA) of the **Model 695** is unconditionally stable and will withstand any magnitude or phase of VSWR indefinitely without damage. The **Model 695's** power output can be varied from 2 Watts to greater than 20 Watts without oscillation or "break up". The **Model 695** is designed with components that are operated conservatively and well within their ratings.

Housed in a rack space saving 5-1/4" self contained package, the **Model 695** will fit into virtually all transmitters in use and is the perfect upgrade for older systems

Complete metering of critical parameters is available at the push of a button. All operational indicators are LED's to eliminate all routine lamp replacement.



RF and audio connections are made by way of back panel connectors. A BNC for composite audio, barrier strip for monaural audio and a Type "N" RF output connector.

Reliability and simplicity of design and operation make the **Model 695** FM exciter an outstanding choice for every FM station.

A short list of features:

- w Ultra Low Distortion, Crosstalk and Noise
- w "AUTOMOD" Automatic Modulation Control
- w Modulation Monitoring With Peak Count
- w Extensive Metering
- w Annunciator Panel
- w Bar-Graph Modulation Display
- w Broadband Design
- w Spectrum Display Output
- w Frequency Synthesized
- w Phase Locked Loop Design
- w Unconditionally Stable Amplifier
- w "VSWR Proof"
- w Compact 5-1/4" Rack Mount Package

QEI FM Exciters, designed and manufactured with pride in the U.S.A.

QEI Model 695 FM Exciter

Technical Specifications

GENERAL

Power Output:..... 5 to 20 Watts
Frequency Range: 87.5 to 108 MHz (other frequencies optional)
RF Load Impedance: 50 ohms
Output Connector: Type "N" Female
VSWR: Operation into any phase or magnitude at reduced output power.
RF Harmonic/Spurious: Suppression meets or exceeds all FCC /DOC / CCIR specifications
Frequency Stability: +/- 200 Hz from 0° to 50°C
Modulation Capability: Greater than +/- 350 kHz
Modulation Sensitivity vs. Temperature: 0.01 % per degree Centigrade
Pre-Emphasis:
Standard 75usec (FCC)
Optional 50usec (CCIR)
Asynchronous AM S/N Ratio (AM Noise): -60 dBc (no FM modulation present)
Synchronous AM S/N Ratio (Incidental AM): -55 dBc with 100 % FM Modulation

ELECTRICAL/MECHANICAL

AC Power: 105-125/210-250 VAC, 50/60Hz.
Power Consumption: 50 Watts
Ambient Temperature Range:
Operating -15°C to +50°C
Startup 0°C to +50°C
Maximum Humidity: 95% non-condensing
Size: 5.25"H (13.35cm) x 19"W (48.25cm) x 14"D(35.5cm)
Weight:
Net Weight 32 Lbs. (14.5 Kg.)
Shipping Weight: 38 Lbs. (17.3 Kg.)

MONAURAL PERFORMANCE

Input Impedance: 600 ohm balanced
CMRR: >60 dB

Input Level: +10 dBm for 75 kHz deviation at 100 Hz
Frequency Response: +/-0.5 dB, 30 Hz to 15 kHz
THD+N: 0.025 % at 400 Hz
FM S/N Ratio: Greater than 75 dB below 75 kHz deviation at 400 Hz, measured in a 50 Hz to 15 kHz bandwidth with 75 usec de-emphasis

WIDEBAND COMPOSITE PERFORMANCE

Inputs: (1) unbalanced on rear panel, BNC connector
Input Impedance: 10 kOhm
Input Level: 3.5 V_{P,P} for 75 kHz deviation
FM S/N Ratio: Greater than 75 dB below 75 kHz deviation at 400 Hz, measured in a 50 Hz to 15 kHz bandwidth with 75 usec de-emphasis
THD+N: 0.025 % at 400 Hz
Amplitude Response: +/-0.01 dB, 30 Hz to 75 kHz
Phase Response: +/-0.1 degrees from linear phase, 30 Hz to 75 kHz

STEREO PERFORMANCE*

Modulation Type: True numeric digital stereo generation, digitally generated pilot; no alignment required.
Frequency Response: +/-0.1 dB, 30 Hz to 15 kHz
THD+N: 0.025 % at 400 Hz
FM S/N Ratio: Greater than 75 dB below 75 kHz deviation at 400 Hz, measured in a 50 Hz to 15 kHz bandwidth with 75 usec de-emphasis
Stereo Separation: >60 dB
Dynamic Stereo Separation: >60 dB
Crosstalk (linear): >60 dB
Crosstalk (non-linear): >60 dB

SCA PERFORMANCE

Subcarrier Inputs: (3) total, unbalanced, BNC connectors
Subcarrier Input Impedance: 10 kOhm
Subcarrier Input Level: 1.0 V_{P,P}, nominal for 10 % injection
Subcarrier Amplitude Response: +/-0.2 dB, 40 kHz to 100 kHz