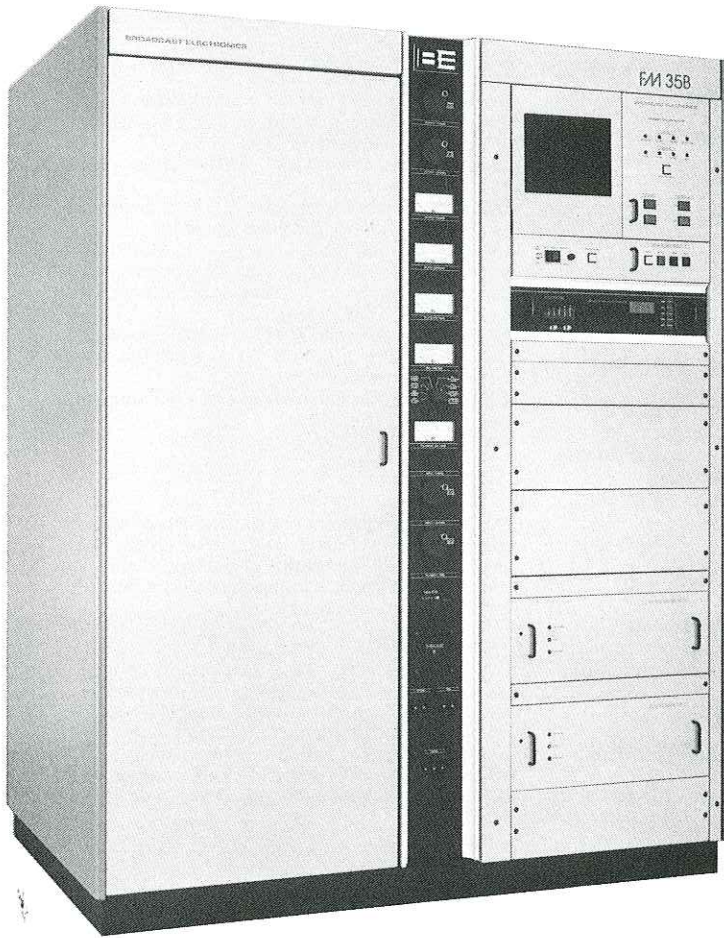


FM-35B

Single Tube 35kW FM Transmitter



Performance Features

- Folded half-wave cavity reduces maintenance costs by eliminating plate blocker and sliding contacts.
- World standard FX-50 Exciter with performance that rivals digital audio.
- Two completely self-contained broadband solid state IPA's in slide-out drawers.
- Single high-efficiency 4CX20000C tube minimizes operating costs.
- Low noise, high efficiency air cooled system for longer tube life.
- Synchronous AM noise measurement port.

Operational Features

- True proportional VSWR foldback and exclusive "soft-start" feature reduces power supply stress and allows turn-on into high VSWR loads.
- Emergency 400 watt RF patching.
- Complete remote control interface built-in.
- Automatic power control maintains consistent RF output power to $\pm 2\%$.
- Automatic AC restart reduces downtime.
- Extensive metering.
- Optional Microprocessor Video Diagnostic System (MVDS) and VMC-16 voice remote control system available.



®

BROADCAST ELECTRONICS INC.
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P.O. Box 3606
Quincy, IL 62305-3606

FM-35B SPECIFICATIONS

TECHNICAL SPECIFICATIONS

GENERAL

Power Output: 35kW (10.5kW to 38.5kW).
Frequency Range: 87.5 to 108MHz, tuned to specific operating frequency; exciter programmable in 10kHz steps.
RF Output Impedance: 50 Ohms (others on special request).
Output Connector: 3 1/8" EIA flange.
VSWR: 1.8:1 maximum. (Will operate into higher VSWR with automatic power reduction.)
Frequency Stability: $\pm 300\text{Hz}$, 0° to 50°C.
Type of Modulation: Direct frequency modulation of carrier frequency.
Modulation Capability: Greater than $\pm 350\text{kHz}$.
Modulation Indication: Peak reading, color coded, LED display with baseband overmodulation indicator.
Exciter: Solid state, 50 watt output, model FX-50; incorporating a digitally programmed synthesizer. (10kHz increments).
Pre-Emphasis: FCC 75 uS, CCIR 50 uS (where specified), 25 uS (Dolby), or flat response, selectable.
Asynchronous AM S/N Ratio: 55dB below equivalent reference carrier with 100% AM modulation at 400Hz, 75 uS de-emphasis (no FM modulation present).
Synchronous AM S/N Ratio: 50dB below equivalent 35kW reference carrier with 100% AM modulation at 1kHz, no de-emphasis (FM modulation $\pm 75\text{kHz}$ at 1kHz).
Tube Complement: 4CX20000C.
RF Harmonics: Suppression meets all FCC/DOC requirements and CCIR recommendations.
Power Supply Rectifiers: Silicon.

ELECTRICAL/MECHANICAL

AC Input Power: 208/240 Vac Delta or WYE, 60Hz, three phase (taps for 196 to 252 Vac; other voltages and line frequencies available upon request).
Primary Power Consumption: 51kW typical (at 0.94 pf) at 35kW RF output.
Overall Efficiency: Typically 68% (AC line input to RF output).
Size: Transmitter: 56.5"W x 31.5"D x 70"H (143.5W x 80D x 177.8H cm). **Power Supply:** 34.5"W x 31.5"D x 70"H (87.6W x 80D x 177.8H cm).
Weight & Cubage: Transmitter: 1500 lbs. (682 kg), packed 1750 lbs. (795 Kg); 72 cu. ft. (2.0 cu. meters); **HV Power Supply:** 1750 lbs. (794 kg), packed 1800 lbs. (816 Kg); 44 cu. ft. (1.2 cu. meters).
Altitude: 10,000 ft. at 60Hz (3048 M).
Ambient Temperature Range: -10° to +50°C.

MONAURAL OPERATION

Audio Input Impedance: 600 ohm balanced, resistive, adaptable to other impedances, 60 dB common mode suppression.
Audio Input Level: +10 dBm nominal for $\pm 75\text{kHz}$ deviation at 400Hz.
Audio Frequency Response: $\pm 0.5\text{ dB}$, 30Hz to 15kHz, selectable flat; 25, 50, 75 uS pre-emphasis.
Total Harmonic Distortion + Noise: 0.02% or less at 400Hz.
SMPT Intermodulation Distortion: 0.02% or less, 60Hz/7kHz, 4:1 ratio.
CCIF Intermodulation Distortion: 0.02% or less, 15kHz/14kHz, 1:1 ratio.
Transient Intermodulation Distortion: 0.02% or less, sine wave/square wave.
FM S/N Ratio: 85 dB below $\pm 75\text{kHz}$ deviation at 400Hz, measured in a 20Hz to 30kHz bandwidth with 75 uS de-emphasis.

WIDEBAND COMPOSITE OPERATION

Composite Inputs: 3 total, (1) unbalanced and (1) balanced plus front panel test; all connectors BNC.
Balanced Composite Input Impedance: 10K ohm or 50 ohm, nominal, resistive, selectable.
Unbalanced Composite Input Impedance: 10K ohm, nominal, resistive.
Composite Input Level: 3.5 V p-p nominal, for $\pm 75\text{kHz}$ deviation.
FM S/N Ratio: 85 dB below $\pm 75\text{kHz}$ deviation at 400Hz, measured in a 20Hz to 30kHz bandwidth with 75 uS de-emphasis.
Composite Total Harmonic Distortion + Noise: 0.02% or less at 400Hz.
Composite SMPT Intermodulation Distortion: 0.02% or less, 60Hz/7kHz, 1:1 ratio.
Composite CCIF Intermodulation Distortion: 0.02% or less, 15kHz/14kHz, 1:1 ratio.
Composite Transient Intermodulation Distortion: 0.02% or less, sine wave/square wave.
Composite Amplitude Response: $\pm 0.05\text{ dB}$, 30Hz to 53kHz.
Composite Phase Response: ± 0.25 degrees from linear phase, 30Hz to 53kHz.
Composite Group Delay Variance: ± 10 nanoseconds, 30Hz to 100kHz.
Composite Slew Rate: 9 V/microsecond (symmetrical).
Subcarrier Inputs: (3) total, unbalanced, BNC connectors.
Subcarrier Input Impedance: 100K ohm, nominal, resistive.
Subcarrier Input Level: 3.5 V p-p, nominal, for $\pm 7.5\text{kHz}$ deviation.
Subcarrier Amplitude Response: $\pm 0.2\text{ dB}$, 40 to 100kHz.

STEREO OPERATION

Modulation Type: Digitally synthesized stereo, digitally synthesized pilot; no pilot phase adjustment required.
Audio Input Impedance: 600 ohm balanced, resistive, floating (adaptable to other impedances).
Audio Input Level: +10 dBm, $\pm 1\text{ dB}$, for 100% modulation at 400Hz (adaptable to other input levels).
Audio Input Filters: 15kHz LPF with delay equalization for minimum overshoot.
Frequency Response: $\pm 0.5\text{ dB}$, 30 to 15,000 Hz, 75 uS pre-emphasis (flat, 25 or 50 uS pre-emphasis selectable).
Total Harmonic Distortion + Noise: 0.05% or less at 400Hz.
SMPT Intermodulation Distortion: 0.05% or less, 60Hz/7kHz, 4:1 ratio.
CCIF Intermodulation Distortion: 0.05% or less, 15kHz/14kHz, 1:1 ratio.
Transient Intermodulation Distortion: 0.05% or less, sine wave/square wave.
FM S/N Ratio: 82 dB below $\pm 75\text{kHz}$ deviation at 400Hz, measured in a 20Hz to 30kHz bandwidth with 75 uS de-emphasis.
Stereo Separation: 50 dB or better; 30 to 15,000Hz (sine wave).
Dynamic Stereo Separation: 50 dB or better; 30 to 15,000Hz (normal program content).
Linear Crosstalk: Main to Sub/Sub to Main due to amplitude and phase matching of left and right channels, 30 to 15,000Hz, 45dB minimum below 100% modulation.
Non-Linear Crosstalk: Main to Sub/Sub to Main due to distortion products, 70 dB minimum below 100% modulation.
38kHz Subcarrier Suppression: 80 dB, minimum, below 100% modulation.
Pilot Stability: $\pm 0.5\text{Hz}$, 0° to 50°C.

FM-35B system performance is specified using model FX-50 FM Exciter, FS-30 Stereo Generator, and FC-30 SCA Generator where applicable, measured at rated transmitter power of 35kW into a 50 ohm resistive load.

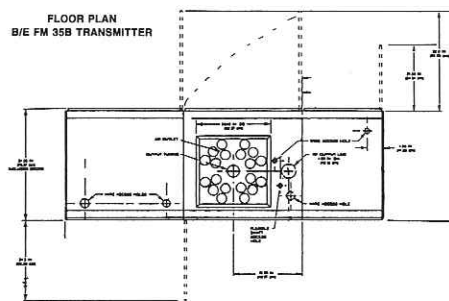
Published specifications are subject to change without notice. Due to varying measurement techniques, care should be observed when comparing the specifications of different manufacturers. For assistance in clarifying or interpreting product specifications, contact Broadcast Electronics' headquarters in Quincy, Illinois, USA.

ORDERING INFORMATION

Model	Stock No.	Description
FM-35B	909-0035-204	FM-35B single tube broadcast transmitter for operation on one specified frequency between 87.5 and 108MHz, 208/240Vac, 60Hz, three phase power source. HV power supply cabinet attached to RF cabinet. Includes FX-50 Exciter.
FM-35B	909-0035-384	FM-35B single tube broadcast transmitter for operation on a specified frequency between 87.5 and 108MHz. 380/415Vac, 50Hz, three phase power source. HV power supply cabinet attached to RF cabinet. Includes FX-50 Exciter.

FACTORY INSTALLED OPTIONS

Model	Stock No.	Description
MVDS/RC-1	909-0091-064	Optional Microprocessor Video Diagnostic System, installed in FM-35B transmitter (must be ordered with transmitter).
VMC-16	907-0016 909-0134	VMC-16 remote control system. Remote high voltage power supply option for FM-35B; includes side panels and 30 ft. interconnecting harness.



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