

BE FM35A, 35 KW FM Transmitter



GENERAL

POWER OUTPUT: 35 kW (10 kW to 38.5 kW)
FREQUENCY RANGE: 87.5 to 108 MHz., tuned to specific operating frequency. Exciter programmable in 10 kHz. steps.

RF OUTPUT IMPEDANCE: 50 ohms (others on special request)

OUTPUT CONNECTOR: 3 1/8 inch EIA flange
VSWR: 1.8-1 maximum. (will operate into higher VSWR with automatic power reduction).

FREQUENCY STABILITY: ± 300 Hz., 0 to 50 Degrees C.

TYPE OF MODULATION: Direct frequency modulation of carrier frequency.

MODULATION CAPABILITY: Greater than ± 200 kHz.

MODULATION INDICATION: Peak reading, color-coded, LED display with baseband over-modulation indicator.

EXCITER: Solid state, 30 watt output, model FX-30; incorporating a digitally programmed synthesizer. (10 kHz. increments)

PRE-EMPHASIS: FCC 75 μ S, CCIR 50 μ S (where specified) or 25 μ S (Dolby)

ASYNCHRONOUS AM S/N Ratio: 55 dB below reference carrier with 100% AM modulation @ 400 Hz., 75 μ S de-emphasis. (no FM modulation present)

SYNCHRONOUS AM S/N RATIO: 45 dB below 35 kW reference carrier with 100% AM modulation @ 400 Hz., 75 μ S de-emphasis. (FM modulation ± 75 kHz. @ 400 Hz.)

TUBE COMPLEMENT: (1) 4CX20,000C

RF HARMONICS: Suppression meets all FCC/DOC requirements and CCIR recommendations.

POWER SUPPLY RECTIFIERS: Silicon

ELECTRICAL/MECHANICAL

AC INPUT POWER: 208 V WYE/240 V Delta, 60 Hz, three phase. (Taps for 196 to 252 V. Other voltages and line frequencies are available upon request.)

POWER CONSUMPTION: 57.0 kW nominal @ 35 kW output, 0.9 pf

SIZE: (Transmitter) 56.5" W x 31.5" D x 70" H (1 43.5 W x 80 D x 177.8 H cm) (Power Supply) 34.5" W x 31.5" D x 70" H (87.6 W x 80 D x 177.8 H cm)

WEIGHT & CUBAGE: (Transmitter) 1500 lbs. (682 Kg); packed 1750 lbs. (795 Kg) 72 cu. ft. (2 cu. meters) (HV Power Supply) 1750 lbs. (794 Kg); packed 1800 lbs. (816 Kg) 44 cu. ft. (1.25 cu. meters)

HARMONIC DISTORTION: 0.08% or less (.04% typical)

INTERMODULATION DISTORTION: 0.08% or less, 60 Hz./7 kHz., 4-1 ratio (.04% typical)

TRANSIENT IMD: 0.1% or less (square wave/sine wave)

FM S/N RATIO: 72 dB below ± 75 kHz. deviation @ 400 Hz. (75 dB typical) measured in a 30 Hz to 15 kHz bandwidth with 75 μ S de-emphasis

*WIDEBAND COMPOSITE OPERATION:

COMPOSITE INPUTS: 3 total, (1) unbalanced and (1) balanced plus front panel test. All connectors; BNC

COMPOSITE INPUT IMPEDANCE: 10K ohm, nominal, resistive

COMPOSITE INPUT LEVEL: 3.5 V p-p nominal, for ± 75 kHz. deviation

COMPOSITE FM S/N RATIO: 72 dB below ± 75 kHz deviation @ 400 Hz. (75 dB typical) Measured in a 30 Hz. to 100 kHz. bandwidth with 75 μ S de-emphasis

COMPOSITE HARMONIC DISTORTION: 0.08% or less (.04% typical)

COMPOSITE INTERMODULATION DISTORTION: 0.08% or less (.04% typical)

COMPOSITE TRANSIENT IMD: 0.1% or less (square wave/sine wave)

COMPOSITE AMPLITUDE RESPONSE: ± 0.1 dB, 30 Hz to 100 kHz

COMPOSITE PHASE RESPONSE: ± 0.5 degrees from linear phase, 30 Hz to 53 kHz

COMPOSITE GROUP DELAY: 390 nanoseconds, ± 25 nanoseconds 30 Hz to 53 kHz

COMPOSITE SLEW RATE: 12 V/microsecond (symmetrical)

• STEREO OPERATION:

AUDIO INPUT IMPEDANCE: 600 ohms balanced, resistive, floating. (Adaptable to other impedances)

AUDIO INPUT LEVEL: +10 dBm, ± 1 dBm, for 100% modulation @ 400 Hz. (Adaptable to other input levels)

AUDIO INPUT FILTERS: 15 kHz LPF with delay equalization for minimum overshoot

FREQUENCY RESPONSE: ± 0.5 dB, 30 - 15,000 Hz, 75 μ S pre-emphasis (flat, 25 or 50 μ S pre-emphasis selectable)

TOTAL HARMONIC DISTORTION: 0.08% or less

NON-LINEAR CROSSTALK: Main to Sub/Sub to Main due to distortion products. 70 dB minimum below 100% modulation.

PILOT STABILITY: ± 0.5 Hz, 0 to 50 C.

MODES: Stereo, Mono L + R, Mono (L) and Mono (R) remote controlled. (See FS-30 data sheet for full details)

• SCA OPERATION:

MODULATION: Direct FM

SUBCARRIER FREQUENCY: 67 kHz (39 to 95 kHz to order)

SUBCARRIER FREQUENCY STABILITY: $\pm 0.5\%$ (330 Hz @ 67 kHz), 0 to 50 degrees C.

SUBCARRIER HARMONIC CONTENT: Less than 0.3%

SUBCARRIER ENVELOPE DECAY: Greater than 100 msec. from 90% to 10% subcarrier levels.

MODULATION CAPABILITY: $\pm 20\%$ of subcarrier frequency

AUDIO INPUT IMPEDANCE: 600 ohm balanced, resistive

DATA INPUT IMPEDANCE: 75 ohm unbalanced, resistive, DC coupled

INPUT LEVELS: (Audio) adjustable +10 dBm to -10 dBm for ± 6 kHz deviation @ 400 Hz. (Data) adjustable 1.0 to 4.0 V p-p for ± 6 kHz deviation (DC coupled)

PRE-EMPHASIS: (Audio) 150 microseconds standard (75 μ S with internal jumper) (Data) no pre-emphasis

FREQUENCY RESPONSE: (Audio) ± 0.5 dB, 10 - 10,000 Hz, exclusive of audio lowpass filter. (Data) ± 0.5 dB, DC - 10,000 Hz.

AUDIO LOW PASS FILTER: Sixth order, -3 dB @ 4.3 kHz, standard (resistor changes for other values)

DATA LOW PASS FILTER: Same as AF filter or may be bypassed.

TOTAL HARMONIC DISTORTION: Less than 0.5% throughout AF pass band

INTERMODULATION DISTORTION: Less than 0.5%, 60 Hz/7 kHz; 1-1 ratio (audio pre-emphasis and LPF bypassed) typically 0.1%

CROSSTALK, SCA TO STEREO: -60 dB or better below 100% modulation of left or right. 75 μ S de-emphasis.

CROSSTALK, STEREO TO SCA: -50 dB or better below ± 6 kHz deviation of SCA using 150 μ S de-emphasis and FS-30 stereo generator