

GATES

A DIVISION OF HARRIS-INTERTYPE

TWO-TUBE
FM-3H3 3000 WATT
FM-5H3 5000 WATT
FM-7.5H3 7500 WATT
FM TRANSMITTERS

SPECIFICATIONS

GENERAL:

POWER OUTPUT: 3 kW, 5 kW or 7.5 kW.
FREQUENCY RANGE: 87.5 to 108 MHz, tuned to specified operating frequency.
RF OUTPUT IMPEDANCE: 50 ohms.
OUTPUT TERMINATION: 3 1/4" EIA flange.
FREQUENCY STABILITY: .001% or better.
TYPE OF MODULATION: Direct Carrier Frequency Modulation.
MODULATION CAPABILITY: ±100 kHz.
AC INPUT POWER: 208/240 V., 50/60 Hz, 3 phase.
 Power consumption for 3 kW output: 7000 watts (approx.).
 Power consumption for 5 or 7.5 kW output: 11,000 watts (approx.).
RF HARMONICS: Suppression meets all FCC requirements.
POWER SUPPLY RECTIFIERS: Silicon.
ALTITUDE: 7500 feet.
AMBIENT TEMPERATURE RANGE: -20°C to +45°C.
MAXIMUM VSWR: 1.7 to 1.
OVERALL CABINET SIZE: 42" W. x 78" H. x 32 3/4" D.
FRONT DOOR SWING: 21".
FINISH: Two-tone, beige-gray.
WEIGHT & CUBAGE: Export: 900 lbs. Domestic: 750 lbs. 72 cu. ft.

MONAURAL MODE:

AUDIO INPUT IMPEDANCE: 600 ohms balanced.
AUDIO INPUT LEVEL: +10 dBm ±2 dB for 100% modulation at 400 Hz.
AUDIO FREQUENCY RESPONSE: Standard 75 microsecond, FCC pre-emphasis curve ±1 dB, 30-15,000 Hz.
DISTORTION: 0.5% or less, 30-15,000 Hz.
FM NOISE: 65 dB below 100% modulation (ref. 400 Hz).
AM NOISE: 50 dB below reference carrier AM modulation 100%.

STEREOPHONIC MODE:

PILOT OSCILLATOR: Crystal controlled.

PILOT STABILITY: 19 kHz ±1 Hz.
AUDIO INPUT IMPEDANCE: (left and right) 600 ohms balanced.
AUDIO INPUT LEVEL: (left and right) +10 dBm ±1 dB for 100% modulation at 400 Hz.
AUDIO FREQUENCY RESPONSE: (left and right) Standard 75 microsecond, FCC pre-emphasis curve ±1 dB, 50-15,000 Hz.
DISTORTION: (left or right) 1% or less, 50-15,000 Hz.
FM NOISE: (left or right) 60 dB minimum below 100% modulation. Reference 400 Hz.
STEREO SEPARATION: 35 dB minimum 50-15,000 Hz.
SUB-CARRIER SUPPRESSION: 42 dB below 90% modulation.
CROSSTALK: (main to sub-channel or sub-to main channel) 42 dB below 90% modulation.

SCA SPECIFICATIONS:

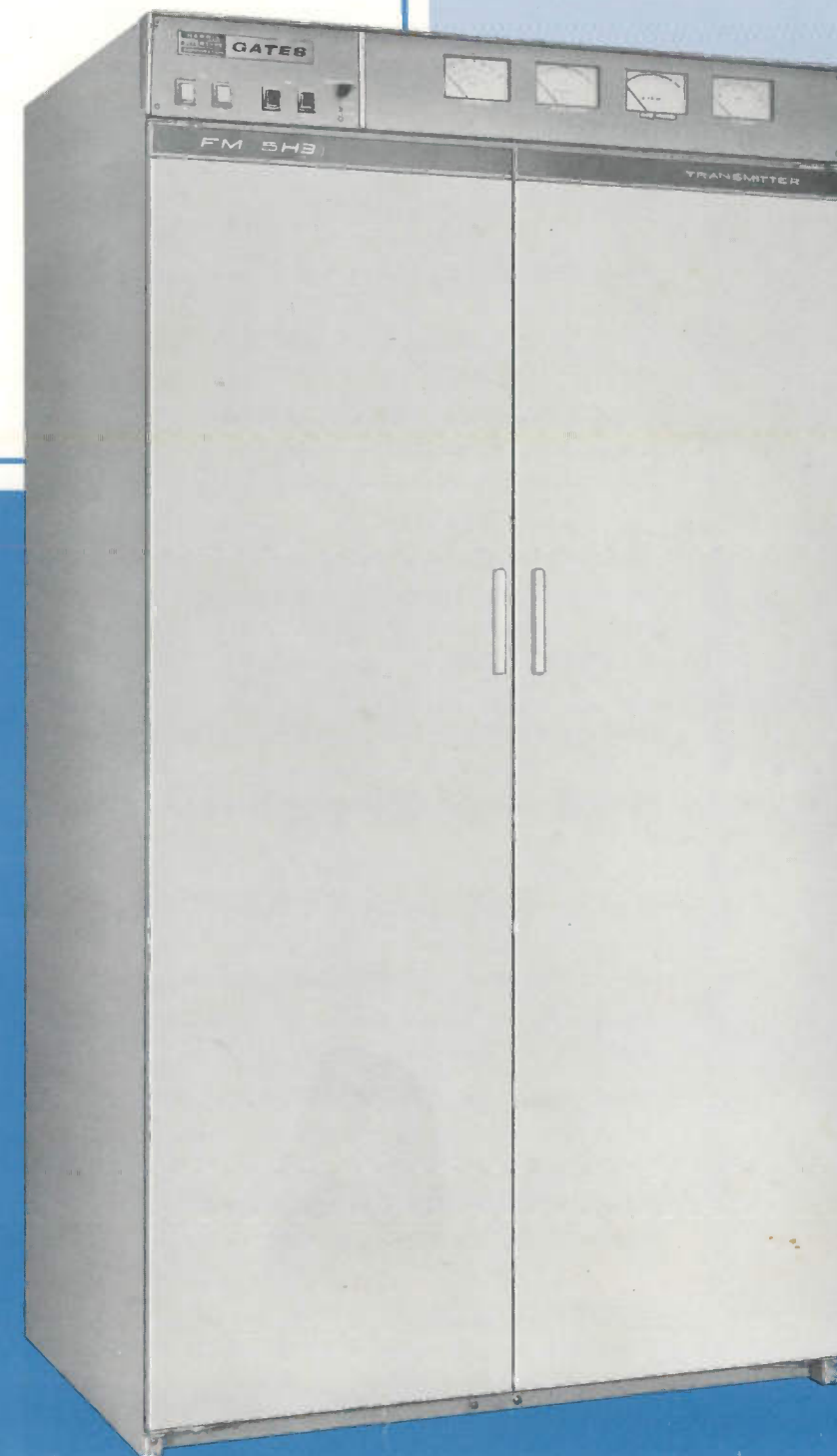
FREQUENCY STABILITY: ±500 Hz.
FREQUENCY: Between 25 and 75 kHz.
OSCILLATOR TYPE: Two Colpitts heterodyned to produce desired output frequency.
MODULATION: Direct FM.
MODULATION CAPABILITY: ±7.5 kHz.
AUDIO INPUT IMPEDANCE: 600 ohms balanced.
AUDIO INPUT LEVEL: +8 dBm, ±3 dB for 100% modulation at 400 Hz.
AUDIO FREQUENCY RESPONSE: 41 kHz and 67 kHz, 50 microsecond, modified pre-emphasis. 67 kHz response modified for proper operation when used with stereo to conform to FCC specifications.
DISTORTION: Less than 1.5%, 30-7000 Hz.
FM NOISE: (main channel not modulated) 55 dB minimum (ref. 100% modulation 400 Hz).
CROSSTALK: (sub-channel to main channel): -60 dB or better.
CROSSTALK: (main channel to sub-channel): 50 dB below 100% modulation (ref. 400 Hz).
AUTOMATIC MUTE LEVEL: Variable from 0 to -40 dB below 100% modulation.

ORDERING INFORMATION

FM-3H3 3000 watt FM broadcast transmitter with TE-3 exciter	994-6742	612,595
FM-5H3 5000 watt FM broadcast transmitter with TE-3 exciter	994-6743	815,595
FM-7.5H3 7500 watt FM broadcast transmitter with TE-3 exciter	994-6744	1,179,995
		2000W
		1000W
		899,995
		7,595

HARRIS
INTERTYPE
CORPORATION

GATES
 A DIVISION OF HARRIS-INTERTYPE
 123 Hampshire St., Quincy, Illinois 62301



GATES' TRANSISTORIZED TWO-TUBE FOR 3000, 5000 OR 7500 WATTS FM TRANSMITTER... THE ULTIMATE IN FM PERFORMANCE

TWO TUBES FOR 3000, 5000 OR 7500 WATTS: Gates offers broadcasters a choice of 3000, 5000 or 7500 watts output with the FM-3H3, FM-5H3 and FM-7.5H3 transmitter series featuring the latest Gates-engineered advancements in FM transmission.

In all three models, only two tubes are needed to produce the rated outputs. The intermediate power amplifier, a 4CX250B, is driven by the solid-state TE-3 Exciter employing Digital AFC, and Direct Carrier Frequency Modulation pioneered by Gates. The final power amplifier is a single-ended 4CX5000A ceramic tetrode conservatively rated for the three power levels from 3 kW to 7.5 kW.

STABLE, EASY OUTPUT TUNING: Plate tuning of the final amplifier is stable and easily adjusted. The plate circuit is the Gates Vari-Line configuration, which eliminates troublesome tuning and blocking capacitors. Coarse plate tuning is pre-set for the operating frequency. Fine adjustment is made with the plate tuning knob on the front panel. Amplifier loading is changed by a variable output loading control.

POWER OUTPUT CONTROL: The transmitter has a built-in motor-operated rheostat connected to the screen supply for adjusting the power output. A built-in reflectometer with a VSWR/power meter makes adjustments of the power output easy and accurate.

PUSH-BUTTON OPERATION: Manual operation of the transmitter is simple. On-off functions are controlled by lighted, dual push-buttons at the top left of the cabinet. They are clearly marked Filament On and Off, Plate On and Off.

AUTOMATIC RECYCLING: In case of momentary overload, the transmitter will recycle automatically. If the overload repeats more than the desired number of times pre-set in the transmitter, the transmitter will then stay off the air until it is reset locally or by remote control.

REMOTE CONTROL: All necessary operating functions can be remote controlled. No additional equipment is required to adapt a Gates Remote Control System to the transmitter. Connections are easily and simply made at a terminal in the base of the cabinet.

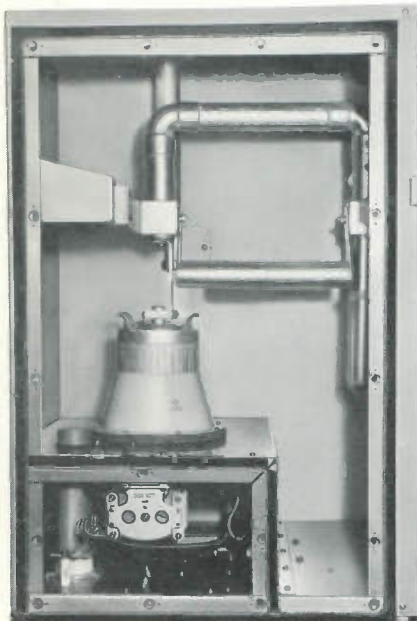
PLUG-IN STEREO AND SCA: A station engineer can equip the transmitter for stereo and/or SCA operation at any time. Gates' unique modular design of the TE-3 solid-state exciter makes this possible using plug-in units.

Initially, the transmitter can be ordered for monophonic service. Later, plug-in stereo and SCA can be added.

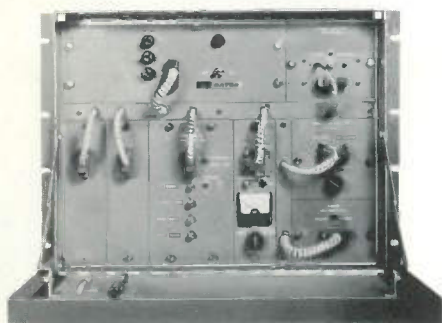
Stereo separation of 35 dB minimum from 50 to 15,000 Hz makes these transmitters outstanding for stereophonic broadcasting.

HARMONIC FILTERING STANDARD: Supplied with a Gates-designed multi-section harmonic filter the transmitter fully meets FCC requirements for spurious radiation.

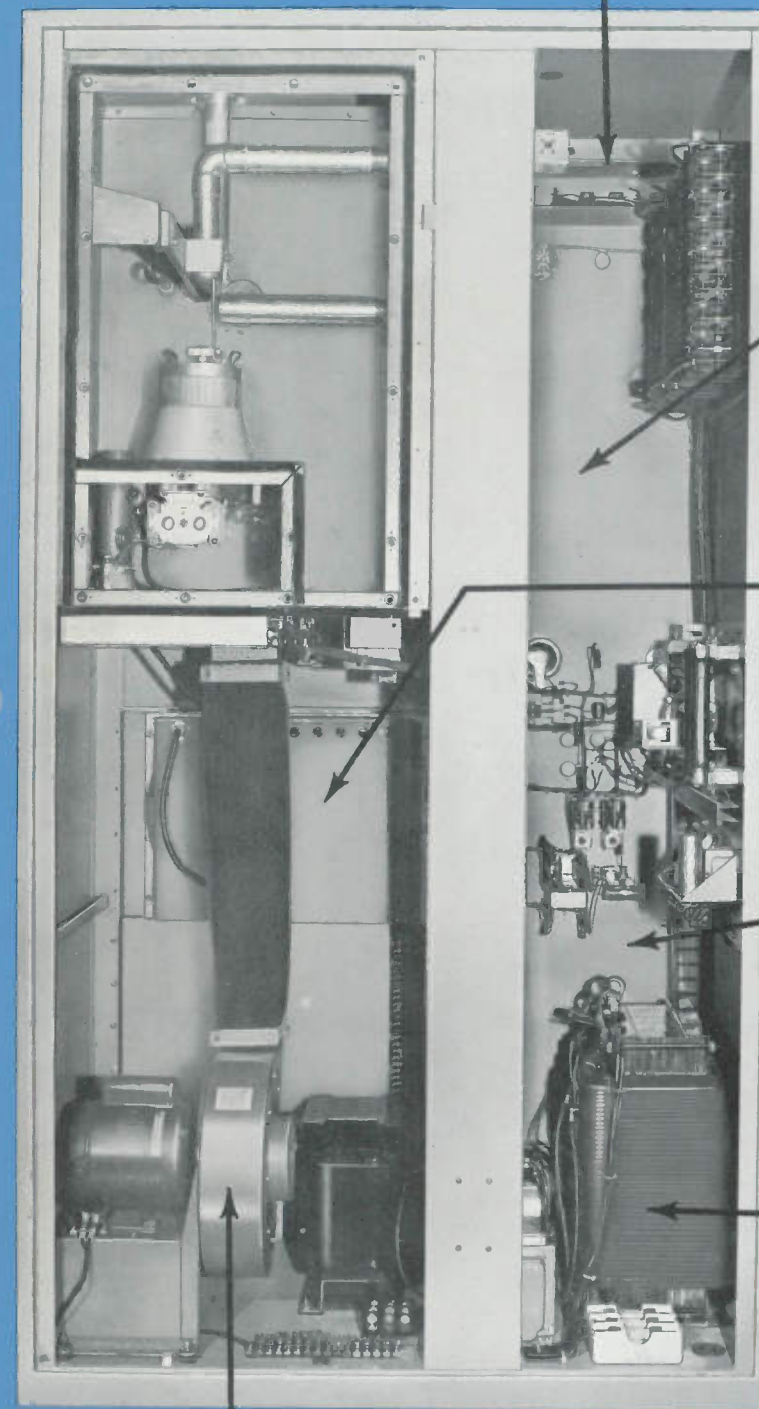
QUALITY COMPONENTS: Every transmitter component is conservatively operated and chosen to give optimum performance in continuous duty service. In Gates' new TE-3 Exciter, only performance-proven solid-state devices and precision, temperature compensated components are used throughout.



Ample drive from the conservatively rated Intermediate Power Amplifier, a Type 4CX250B, assures high efficiency and long tube life of the final amplifier.



Gates TE-3 solid state 10 watt exciter.



COMPLETE METERING: Twelve different operating functions of the transmitter are fully monitored by five easy-to-read meters on the cabinet meter panel and exciter.

FRONT-PANEL TEST POINTS permit fast checking of transmitter circuit conditions.

GATES TE-3 SOLID-STATE EXCITER employs direct carrier frequency modulation (DCFM), and Digital AFC for the finest fidelity and maximum stability.

STRAIGHTFORWARD DESIGN allows easy accessibility to connections for program circuits.

SOLID-STATE POWER SUPPLIES use long-life silicon rectifiers having ample voltage and current safety factors.

HIGH-CAPACITY BLOWER backed up by a precision air-pressure switch gives complete protection to the IPA and PA tubes.