

### FM 20T - Technical Specifications : Technical Specifications

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#### RF SPECS

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**Output Power:****Range:**

20 kW (7.5 kW to 22 kW)

**Efficiency:**

Typically 68% (AC line input to RF output)

**VSWR:**

1.8:1 maximum (will operate into higher VSWR with automatic power reduction)

**Impedance:**

50 ohm

**Frequency:****Range:**

87.5 MHz to 108 MHz, tuned to specific operating frequency, exciter programmable in 10 kHz steps

**Stability:**

±300 Hz, 0 to 50° C

**RF Harmonics Suppression:**

Suppression meets all FCC/DOC requirements and CCIR recommendations

**Modulation:****Type:**

Direct frequency modulation of carrier frequency

**Capabilities:**

Greater than ±350 kHz

**Regulatory:**

Meets IEC 215 safety requirements

#### STXE 60 EXCITER AUDIO SPECIFICATIONS

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**General****RF Power Output:**

5-66W

**Output Impedance:**

50 ohms nominal

**VSWR:**

Rated power into 1.5:1 VSWR. Open and short circuit protected at all phase angles

**Frequency Range:**

87.5MHz to 108MHz; 10kHz increments

**Frequency Stability:**

Internal TCXO: +/-100Hz factory calibration, +/-4ppm agin/temp, -10 degrees C to +50 degrees C; External Input: +/- accuracy of reference source

**Audio Inputs:**

AES, L&R analog, Unbalanced composite, SCA audio inputs, RDS input

**Modulation Type:**

Direct-to-channel digitally generated FM (no analog up-conversion); FM only

**Modulation Capability:**

Up to 300kHz

**Asynchronous AM S/N Ratio:**

75dB below rated power reference carrier with 100% AM modulation at 400Hz, with no FM modulation present.

**Synchronous AM S/N Ratio:**

60dB below rated power reference carrier with 100% AM modulation at 400Hz, with FM modulation +/- 75kHz at 400Hz

**Spurious and Harmonic:**

# Broadcast Electronics

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: 85dB or better typical, low pass filter standard

**AC Input:**

90 to 264VAC; 47-63Hz

**Power Factor:**

0.99 typical at 110VAC, 0.95 typical at 220VAC

**AC Inputs Testing:**

Tested to EN 301 489-1, including Voltage Dips and Dropouts (Section 9.7B), Voltage Surges (Section 9.8), and conducted immunity and conducted radiation

**Regulatory:**

FCC; IC; CE; BETS-6; IEC 215 Safety

**Operational Modes:**

Stereo, mono (L+R), L only, R only

**Stereo:****Connector Type:****AES:**

Wire – XLR

**L&R:**

XLR

**Input Level:****AES:**

-2 dBfs for 100% modulation; 16-24 bits (32, 44.1, 48 or 96 kHz typical rates for AES/EBU devices)

**L&R:**

+10 dBm for 100% modulation into 600 ohms

**Impedance:****AES:**

110 ohm balanced

**L&R:**

600 ohms or 10 k selectable; balanced

**Amplitude Response:****AES:**

±0.25 dB, 20 Hz to 15 kHz

**L&R:**

±0.25 dB, 20 Hz to 15 kHz

**THD + Noise:****AES:**

0.03 or better @400Hz measured 10 Hz-22Khz, 75 uS deemphasis

**L&R:**

0.005 typical @400Hz, measured 10 Hz-22Khz, 75 uS deemphasis

**S/N Ratio:****AES:**

95dB typical below 100% modulation @ 400Hz, 10Hz-22Khz bandwidth, A-weighted filter 100dB typical below 100% modulation @ 400 Hz, 10Hz-22Khz bandwidth, CCIR-468 filter

**L&R:**

86dB or better below 100% modulation @ 400Hz, 10 Hz-22Khz bandwidth, unweighted

**Analog:**

93dB typical below 100% modulation @ 400Hz, 10Hz-22Khz bandwidth, A-weighted filter 98dB typical below 100% modulation @ 400 Hz, 10Hz-22Khz bandwidth, CCIR-468 filter

**S/N Ratio Stereo:**

80dB or better below 100% modulation @ 400Hz, unweighted

**Stereo Separation:**

70dB or better, 20HZ to 15kHz

**AES:**

80 dB, 20 Hz to 15 kHz

**L&R:**

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70 dB, 20 Hz to 15 kHz

**Pilot Stability:**

$\pm 0.3$  Hz, 0° C to +50° C

**Audio Overshoot:**

150% peak deviation max.

**Composite Performance:**

**Connector Type:**

BNC Unbalanced: BNC

**Input Level:**

3.5 V p-p for 100% modulation into 10 kOhms

**Impedance:**

Balanced: 10 kOhm or 50 ohm selectable, Unbalanced: 10 kOhm

**Amplitude Response:**

$\pm 0.03$  dB 20 Hz to 53 kHz; 0.1 dB 53 kHz to 99 kHz

**Phase Response:**

$\pm 0.1^\circ$  from linear phase; 53 kHz to 100 kHz

**THD + Noise:**

0.005% or less @ 400Hz, 10-22Khz bandwidth, 75 us deemphasis

**Intermod Dist:**

SMPTE: 0.01% or less (60/7000 Hz, 1:1 ratio) DIM-B: 0.005% typical (14Khz)

**FM S/N Radio:**

88 dB below 100% modulation @ 400 Hz, 10Hz-22Khz bandwidth, unweighted

**FM S/N Ratio:**

95dB typical below 100% modulation @ 400Hz, 10Hz-22Khz bandwidth, A-weighted filter

**FM S/N Ratio:**

100dB typical below 100% modulation @ 400 Hz, 10Hz-22Khz bandwidth, CCIR-468 filter

**SCA/SCA2/RDS:**

**Air Conditioning Sizing:**

5.41 ton A/C

**Impedance:**

10k ohms unbalanced

**Amplitude Response:**

+/- 0.1dB; 53Hz to 100kHz

**19kHz Output:**

19kHz synchronization clock for external RBDS/RDS operation 1V pp into high impedance

**Physical:**

**Height:**

3.5 inches (2 RU)

**Width:**

19" EIA rack mountable

**Depth:**

STXe 60 19.5 inches

**Weight:**

STXe 60 20lbs. unpacked

### MECHANICAL/PHYSICAL

**Size:**

**Unpacked:**

Transmitter: 50.5"W x 70"H x 31.5"D (128.3 x 177.8 x 80 cm) Power Supply: 28.5"W x 70"H x 31.5"D (72.4 x 177.8 x 80 cm)

**Weight:**

**Unpacked:**

Transmitter: 1200 lbs. (545 kg) Power Supply: 1500 lbs. (681 kg)



# Broadcast Electronics

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**RF Output Connector:**

3-1/8" EIA flange

**Heat Dissipation:**

10 kW (34,130 BTU/hr) at 20 kW RF output

**Air Conditioning Sizing:**

2.85 ton A/C unit

**To determine Air Condition size for closed system:**

one BTU/hr=0.293 watt one watt=3.413 BTU/hr 12,000 BTU/hr=1 ton of A/C eg. at 10 kW dissipated  $(10,000 \times 3.413 = 34,130/12,000 = 2.85)$

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**ENVIRONMENTAL****Temperature Range:**

-10° to +50° C

**Altitude:**

7500 ft. (2286 M) @ 50 Hz; 10,000 ft. (3048 M) @ 60 Hz

**Humidity:**

0-95% Non-Condensing

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**ELECTRICAL****AC Input Voltage:**

208/240 V Delta or WYE, 50/60 Hz, three phase. (Taps for 196 to 252 V, other voltages and line frequencies are available upon request)

**Power Consumption:**

30 kW at 20 kW RF output

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**ALL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE**

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