



## GENERAL

### Transmitter Type

Medium wave, AM, 100% solid state

### Configuration

Forty RF power modules, each including a single integrated RF amplifier/modulator

No frequency dependant parts in RF module

Each module is hot pluggable and has internal microcontroller for protection and monitoring over a serial bus

Short circuit protection at the module level offers an added layer of protection

Dual redundant digital single board excitors utilizing FPGA/DSP technology with automatic changeover

Pre-correction utilized specifically to improve digital performance

Redundant low voltage power supplies

### RF Output Power

**Maximum:** 150 kW RMS

**Peak Power:** 552 kW

**Carrier Power Range:** 0 to 110 kW

Up to 62 preset levels, presets may include other operational parameters such as DRM vs Analog and different program inputs

Output level stabilized against AC supply voltage variations

Built in Dynamic Carrier Control

Built in AM stereo

### RF Output Connection

3 1/8 EIA female standard, other outputs on request

### RF Output Impedance

50 ohms, unbalanced

### Efficiency

90% typical at 100 kW

### RF Load VSWR

16,000 peak reflected watts (1.5:1 VSWR @ 100 kW, 100% modulation) results in instantaneous power shutback

4000 reflected watts RMS (1.5:1 VSWR @ 100 kW, 0% modulation) results in a graceful power reduction

### Frequency Range

531 kHz to 1,620 kHz.

"Quick frequency change capability"

### Frequency Stability

±4 Hz over temperature range

Optional 300 ppb ovenized source with GPS option

### Modulation Type

9 phase direct digital modulation

2.7 MHz modulation sample rate

### Modulation Capability

135% positive peak modulation to 100 kW

120% positive peak modulation to 110 kW

### Spurious and Harmonic

Meets ITU-R SM.328-10

Meets ITU-R SM.329-9

## AC INPUT

### Voltage

340 V to 440 V, 3 phase or to customer specifications

### Power Supply Variation

±10% voltage, 47 Hz to 63 Hz

### Power Consumption

111 kW typical at 100 kW, 0% modulation

167 kW typical at 100 kW, 100% modulation

### Cos (theta)

0.95 typical

## ENVIRONMENTAL

### Temperature Range

0°C to + 50°C

Derate 3°C per 500 m above sea level (2°C per 1,000 ft)

### Humidity Range

0% to 95% non-condensing

### Altitude

0 m to 4,000 m (0 ft to 13,000 ft)

### Cooling Air Requirements

2,550 m<sup>3</sup>/hr (1,500 CFM)

## SAFETY

Meets EN60215: 1976 Safety Requirements for Radio Transmitting Equipment





## PHYSICAL

### Dimensions

Transmitter Cabinet  
184 cm H x 95.7 cm W x 120 cm D  
(72.4" H x 37.7" W x 47.2" D)

External Transformer Cabinet  
116.8 cm H x 113 cm W x 61 cm D  
(46" H x 44.5" W x 24" D)

### Weight

Main transmitter cabinet with modules installed:  
567 kg (1250 lbs)

Power transformer:  
753 kg (1659 lbs)

## AUDIO PERFORMANCE

### Analog Audio Input

Dual AES-EBU Digital Audio inputs\*  
-4dBm nominal for 100% modulation 600 ohms balanced  
+10 dBm nominal for 100% modulation  
Adjustable for -10 to +12 dBm

### Digital Broadcasting Inputs

I,Q over AES-EBU, SRC available\* with sample rate converter  
I,Q over LVDS, 3 pairs, Clock, Data, frame sync  
\*Two AES-EBU inputs provided and may be used for either analog audio or digital I,Q inputs

Optional Embedded DRM Generator/Content Server

Optional Embedded HD Radio Generator (Exgine™)

### Frequency Response

+0.2 dB/-0.8 dB, 30 Hz to 10,000 Hz.

Optional audio input filters available to meet regional bandwidth restrictions

### Total Harmonic Distortion

Better than 0.8% (THD), 30 Hz to 10,000 Hz at 95% modulation (typical)

### Intermodulation Distortion

SMPTE 1:1 Ratio, 60Hz/7kHz, 95% Mod Peak  
- 0.5% @ 100kW  
DIM-B, 2.96kHz/9kHz, 80% Mod Peak - 0.5% @ 100kW

### Carrier Shift

0.5% or less

### Hum and Noise

-65 dB or better below 100kW,  
100% modulation

## CONTROL AND MONITORING

Extensive Control/Monitoring/Troubleshooting system through 17" front panel LCD touchscreen. Touch panel control system is non-critical and may be removed from the system without affecting transmitter operation or remote control/monitor via direct wired connections. Redundant back-up control interface provides control in case of front panel computer system failure. Built in instrumentation providing detailed spectrum/impedance and modulation analysis.

### Metering

#### Cube

DC Voltages (B+, PA and 15V)  
DC Current  
Sample Levels (PDM and RF Drive)  
Fan Speeds  
Heat Sink Temperature

#### Rack

DC Voltage levels (15V, 5V, 30V, 48V and B+)  
Rectifier Fan Speeds  
DC Current  
Rectifier Heat Sink Temperature  
AC Voltage

#### Exciter

Output Current (RMS, Peak, Carrier)  
Output Voltage (RMS, Peak, Carrier)  
Forward Power (RMS, Peak, Carrier)  
Reflected Power (RMS, Peak, Carrier)  
Audio/Modulation Levels (RMS and Peak - Positive/Negative)  
Load Impedance

### Controller

PDM and RF Drive Levels  
Ambient Temp

### RF Monitor

RF monitor is a power sample (using a directional coupler) that will allow for accurate spectral compliance measurements

### Status

Easy access to current transmitter operating state, past and present alarm conditions and historical trends of both digital and analog channels

### Schedule

Intuitive easy to read built in scheduler

Up to 15 yearly and 6 daily time frames can be defined by user

### Remote Control/ Monitoring

Three Remote interfaces:

- Direct wired optically isolated inputs and open collector outputs
- Web interface - All locally available control is available over TCP/IP web interface
- SNMPv1

### Notes:

Specifications defined in a laboratory environment with high grade source and demodulation equipment. Standard factory measurements does not include all items

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

