

GENERAL

Transmitter Type

Medium wave, AM, 100% solid state

Configuration

Ten 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: 22.5 kW RMS

Carrier Power Range: 0 to 16.5 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

84% typical at 15 kW

RF Load VSWR

4000 peak reflected watts (1.7:1 VSWR @ 15 kW, 100% modulation) results in instantaneous power shutback

1000 reflected watts RMS (1.7:1 VSWR @ 15 kW, 0% modulation) results in a graceful power reduction

Frequency Range

531 kHz to 1,620 kHz.

"Quick frequency change capability"

Frequency Stability

±2 ppm over temperature range

Optional 300 ppb ovenized source with GPS option

Modulation Type

6 phase direct digital modulation

1.8 MHz modulation sample rate

Modulation Capability

140% positive peak modulation to 15 kW

130% positive peak modulation to 16.5 kW

Spurious and Harmonic

80 dB or more below carrier at 15 kW

Meets ITU-R SM.328-10

Meets ITU-R SM.329-9

AC INPUT

Voltage

340 V to 510 V, 3 phase or to customer specifications

Power Supply Variation

±10% voltage, 47 Hz to 63 Hz*

Power Consumption

17.9 kW typical at 15 kW, 0% modulation

26.8 kW typical at 15 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 m³/hr (1,500 CFM)

SAFETY

Meets EN60215: 1996 Safety Requirements for Radio Transmitting Equipment



PHYSICAL

Dimensions

184.2 cm H x 95.7 cm W x 120 cm D
(72.4" H x 37.7" W x 47.2" D)

Weight

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

Power transformer:
262 kg (578 lbs)

AUDIO PERFORMANCE

Analog Broadcast Inputs

Dual AES-EBU Digital Audio inputs* adjustable from -30dBFS to 0dBFS for 100% modulation

600 ohms balanced analog audio input +10 dBm nominal for 100% modulation, adjustable from -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 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), 1 kHz tone at 95% modulation (typical)

Intermodulation Distortion

SMPTE 1:1 Ratio, 60Hz/7kHz, 95% Mod Peak - 0.5% @ 25 kW (typical)

DIM-B, 2.96kHz/9kHz, 80% Mod Peak - 0.5% @ 25 kW

Carrier Shift

0.5% or less

Hum and Noise

-65 dB or better below 25 kW,
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 audio performance 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 144 yearly rules 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.

