

NX100

TECHNICAL SUMMARY PRELIMINARY

ISSUE 1.0

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GENERAL

Transmitter Type

Medium wave, 100% solid state

Configuration

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

No frequency dependant parts in Rf module

Module has internal microcontroller for protection monitoring over serial bus

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

Hot pluggable

Dual redundant digital single board exciters with automatic changeover

FPGA/DSP technology

Adaptive pre-correction

RF Output Power

Maximum: 110 kW

Range: 10 kW to 110 kW

Six 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

Optional 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

Nominal 1.1:1 VSWR, maximum 1.5:1

Sideband VSWR up to 2:1 with carrier frequency impedance of 50 +/-j0 ohms

System performance will be degraded

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

80 dB or more below carrier at 100 kW

Meets ITU-R SM.328-10

Meets ITU-R SM.329-9

AC INPUT

Voltage

380 V to 400 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

Power Factor

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

3,400 m³/hr (2,000 CFM)





SAFETY

Meets EN60215: 1976 Safety Requirements for Radio Transmitting Equipment

PHYSICAL

Dimensions

184.2 cm H x 95.9 cm W x 111.8 cm D
(72.5" H x 37.75" W x 44" D)

Weight

TBD

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, Framesync

*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

Intermodulation Distortion

1.0% or less at 100 kW, 60/7000 Hz, 1:1 ratio SMPTE standards at 85% modulation

Square Wave Overshoot

1.0% at 400 Hz (100 μS risetime)

Square Wave Tilt

1% or less at 40 Hz

Carrier Shift

0.5% or less

Hum and Noise

-65 dB or better below 100 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. Comprehensive troubleshooting providing detailed analysis of faults, recommended steps for correction as well as historical trend information.

Metering

Forward Power/Reflected Power
DC Input Current
DC Voltages
Fan RPM

Each RF Module over serial connection:

- PA Current
- PA Voltage
- B+ DC Power Supply Voltage
- 15 V
- Heat Sink Temperature
- RF Drive Input
- Modulation Input

Status

LED Diagnostic status flow diagram with self-test features

Remote Control

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
- SNMP

Transmitter ON/OFF

Selection of Exciter A or B, Automatic Changeover

Power Adjust (full range, 0.1% resolution)

Alarm Reset

Remote Monitoring

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Forward Power/Reflected Power

DC Input Current

DC Voltages

Status of Critical Parameters

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

