

NX300

TECHNICAL SUMMARY
www.nautel.com | info@nautel.com



GENERAL

Transmitter Type

Medium wave, AM, 100% solid state

Configuration

One Hundred Twenty 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: 450 kW RMS

Peak Power: 1650 kW

Carrier Power Range: 0 to 330 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

6 1/8 EIA female standard, other outputs on request

RF Output Impedance

50 ohms, unbalanced

Efficiency

90% typical at 300 kW

RF Load VSWR

48000 peak reflected watts (1.5:1 VSWR @ 300 kW, 100% modulation) results in instantaneous power shutback

12000 average reflected watts (1.5:1 VSWR @ 300 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 300 kW

120% positive peak modulation to 330 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

333 kW typical at 300 kW, 0% modulation

500 kW typical at 300 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

7,650 m³/hr (4500 CFM)

SAFETY

Meets EN60215: 1976 Safety Requirements for Radio Transmitting Equipment



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PHYSICAL

Dimensions

Transmitter Cabinet

184* cm H x 287.3 cm W x 121.6 cm D
(72.4" H x 113.1" W x 47.9" D)

*not including antenna grounding switch

External Transformer Cabinet

152.4 cm H x 152.4 cm W x 838 cm D
(60" H x 60" W x 33" D)

Weight

Main transmitter cabinet with modules installed:
1701 kg (3750 lbs)

Power transformer:
1579 kg (3481 lbs)

AUDIO SPECIFICATIONS

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 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% @ 300kW
DIM-B, 2.96kHz/9kHz, 80% Mod Peak - 0.5% @ 300kW

Carrier Shift

0.5% or less

Hum and Noise

-65 dB or better below 300kW, 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
Drive 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 (from 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

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

