XR3-XR6 AM Transmitter

Making Digital Broadcasting **Work** PHONE +1.902.823.2233 FAX +1.902.823.3183 info@nautel.com www.nautel.com

GENERAL

Transmitter Type
Medium wave, 100% solid state

Configuration
Eight broadband RF amplifiers and four modulators mounted in a plug-in RF Module

Dual DDS exciters and modulation encoders. Full automatic changeover

Second redundant spare module with full automatic changeover (optional)

RF Output Power
Maximum: XR3 - 3.75 kW
XR6 - 7.5 kW

Max average power:

XR3 - 4.5 kW
(3 kW + 100% modulation)

XR6 - 9 kW
(6 kW + 100% modulation)

Range: XR3 - 50 W to 3.75 kW
XR6 - 50 W to 7.5 kW

Six programmable preset power level profiles, selectable locally or remotely

RF Output Connection
$^{7}/_{8}$" or 1 $^{5}/_{8}$" standard

RF Output Impedance
50 ohms, unbalanced

Efficiency
83% typical

RF Load VSWR
XR3 - 500 peak reflected watts 1.5:1 VSWR at 3 kW, 100% modulation

XR6 - 1,000 peak reflected watts 1.5:1 VSWR at 6 kW, 100% modulation

Frequency Range
531 kHz to 1,710 kHz. Supplied, tuned and tested to one frequency as specified

Frequency Stability
±2 ppm; less than 4 Hz over temperature range
External GPS for increased stability

Modulation Type
Nautel Wideband Interphase Pulse Duration Modulator

Modulation Capability
XR3
155% positive peak modulation at 2.5 kW
145% positive peak modulation at 3 kW
120% positive peak modulation at 3.75 kW

XR6
155% positive peak modulation at 5 kW
145% positive peak modulation at 6 kW
120% positive peak modulation at 7.5 kW

Spurious and Harmonic
Exceeds FCC, IC and ITU requirements

80 dB relative to carrier

AC INPUT

Voltage
200 to 260 V ac, 1 phase
50 Hz or 60 Hz to customer specifications

Power Supply Variation
±10% voltage , 47 Hz to 63 Hz

Power Consumption
XR3
3.0 kW typical at 2.5 kW, 0% modulation
4.5 kW typical at 2.5 kW, 100% modulation

3.6 kW typical at 3 kW, 0% modulation
5.4 kW typical at 3 kW, 100% modulation

XR6
6 kW typical at 5 kW, 0% modulation
9 kW typical at 5 kW, 100% modulation

7.2 kW typical at 6 kW, 0% modulation
10.8 kW typical at 6 kW, 100% modulation

Power Factor
0.85 typical, 1 phase

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 3,000 m (0 ft to 10,000 ft)

Cooling Air Requirements
340 m^3/hr (200 CFM)

PHYSICAL

Dimensions
184 cm H x 58.4 cm W x 80.5 cm D
(72.5" H x 23" W x 31.7" D)

Weight
XR3 - 217 kg (477 lbs)
XR6 - 235 kg (517 lbs)

AUDIO PERFORMANCE

Audio Input

600 ohms balanced

+10 dBm nominal (adjustable from 0 dBm to +12 dBm)

Frequency Response

+0.2 dB/-0.8 dB, 30 Hz to 10,000 Hz.
Referenced at 1 kHz, 95% modulation

Total Harmonic Distortion

Better than 0.8% (THD), 30 Hz to 10,000 Hz.

XR3
1.25% @ 1,250 W
1.5% @ 500 W (typical)

XR6
1.25% @ 2,500 W
1.5% @ 500 W (typical)

Intermodulation Distortion

1.0% or less, 60/7000 Hz, 1:1 ratio
SMPTE standards at 95% modulation.

Transient Intermodulation Distortion

0.5% at 80% modulation, 2.96 kHz/8 kHz, 30 kHz BW

Square Wave Overshoot

1.0% or less at 400 Hz (100 µS risetime)

Square Wave Tilt

0.5% or less at 40 Hz

Carrier Shift

1% or less at 25, 50, 85 & 100% modulation

Hum and Noise

-65 dB or better below 6 kW, 100% modulation, 3 phase
-60 dB or bettter below 6 kW, 100% modulation, 1 phase

DIGITAL COMPATIBILITY

HD Radio™

Compatible with NE IBOC - HD Radio signal generator

Exceeds all regulatory requirements for AM HD Radio operation

DRM

Compatible - Consult factory

Notes:

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