



Flexiva DX™

10, 15 and 200-2000 kW Solid-State AM Transmitters

Flexiva DX™ family — made up of the DX 10, DX 15 and DX 200-2000 kW solid-state AM transmitters — will stay on the air no matter how demanding the broadcast needs. Hundreds of broadcasters have benefited from the superior performance and reliability provided by patented digital amplitude modulation. Flexiva DX transmitters provide unsurpassed audio performance, improved coverage, simple operation, the lowest cost of operation and the highest reliability of any medium-wave transmitter. Extensive options are available to tailor the Flexiva DX system to facility needs, including both air- and liquid-cooling options.

A digitally modulated transmitter, the Flexiva DX system is ready for DRM (Digital Radio Mondiale) or HD Radio™. Simply add the appropriate exciter, and Flexiva DX is on the air in digital broadcast mode.

Product Features

- Digital — Flexiva DX transmitters have Direct Digital Synthesis of the RF envelope using true digital modulation, not PDM
- Reliable — Flexiva DX transmitters have set a new standard for RF amplifier reliability and ruggedness. The RF modules run exceptionally cool
- Simple — Simple to operate and maintain, Flexiva DX transmitters use standard off-the-shelf components, which are easily accessible and field repairable
- Efficient — Flexiva DX transmitters are proven to yield typical efficiency of over 83 percent, resulting in the industry's lowest power cost
- Rugged — Failures are virtually eliminated through a patented lightning protection system. Built-in surge protection is standard on all AC mains lines and internal power supplies
- Redundant — In critical areas, Flexiva DX transmitters use redundant circuit designs. Soft failure and FLEXPatch reassignment ensure uninterrupted broadcasting without significant degradation in performance. Broadband, interchangeable RF amplifier modules simplify maintenance
- Future Compatibility — Future digital broadcast compatibility is ensured with high peak-to-average power capability, exceptional audio bandwidth and virtually no audio-to-RF group delay variation. Flexiva DX transmitters have been used for IBOC field tests

Specifications

Specifications and designs are subject to change without notice

General	
Type of Modulation	GatesAir-patented AM Digital amplitude modulation
Transmitter Type	Medium-wave, 100 percent solid state
Power Output Range	
DX 10	1 to 11 kW
DX 15	2 to 15 kW
DX 200 to 2000	40 to 200 kW
All 3 models are capable of combined operation, 3 adjustable pre-set power levels are provided	
Frequency Range	
DX 10/15	531 to 1705 kHz
DX 200 to 2000	531 to 1620 kHz
All 3 models supplied, tuned and tested to 1 frequency, as specified	
AC Mains Input	
DX 10/15	197 to 281 VAC, 3-phase, 341 to 468 VAC, 3 phase, 4 wire
DX 200 to 2000	380 to 20 k VAC, 3-phase user specified 360 to 500 VAC, 3-phase 190 to 260 VAC, single phase
Power Supply Variation	
DX 10/15	±10% voltage, 48 to 63 Hz
DX 200 to 2000	+10/-15% voltage, 48 to 63 Hz
Transient Protection	
DX 10/15	Meets IEC 587 requirements
DX 200 to 2000	Meets ANSI/IEEE C62.41-1980 requirements
Power Factor	
DX 10/15	0.98% typical
DX 200 to 2000	0.95% typical, with optional correction
Frequency Stability	
All three models	±10 Hz, 0 to 50° C, ±2 Hz at typical conditions
Audio Input	
All three models	-10 to +10 dBm, adjustable transformerless input; 600, 150, and 50 ohms terminators provided
RF Output	
DX 10/15	15/8 in. EIA flange
DX 200 to 2000	4-1/16 in. EIA flange (female), 50 ohms unbalanced Other impedances available upon request per quotation
RF Load	
DX 10/15	50 ohms, unbalanced
DX 200 to 2000	50 ohms, nominal Front-panel matching adjustments Antenna matching range 1.2:1 VSWR minimum

Cabinet and Harmonic/Spurious Radiation	
DX 10/15	Meets FCC, CCIR and IC requirements
DX 200 to 2000	Meets CCIR requirements
Overall AC Efficiency	
DX 10/15	Typically 83% at 10 and 15 kW
DX 200 to 2000	Typically 86% at 200 kW
General Specifications Specifically for DX 200 to 2000 kW Model	
RF Monitor Provisions	
DX 200 to 2000	Up to 10 V RMS RF modulated output sample (up to 6v pp constant sample level for high-, medium- or low-power settings) 5 V RMS RF frequency monitor sample
Power Consumption	
DX 200 to 2000	229.9 kW or less (typical) at 200 kW, 0% modulation; 348.8 kW or less (typical) at 200 kW, 100% tone modulation
Audio Performance	
Audio Frequency Response	
DX 10/15	+0.2/-0.8 dB, 20 Hz to 10 kHz, reference 1 kHz at 95% modulation
DX 200 to 2000	+0.2/-0.8 dB, 50 Hz to 10 kHz, reference 1kHz
Total Harmonic Distortion	
DX 10	0.8% or less at 95% modulation, 30 Hz to 10 kHz, at 10 kW; 0.5% typical
DX 15	1.0% or less at 95% modulation, 30 Hz to 10 kHz, at 15 kW, 0.3% typical
DX 200 to 2000	0.8% or less THD at 95% modulation, 50 Hz to 10 kHz at 200 kW
Intermodulation Distortion	
DX 10	0.8% or less, 1:1, 60/7000 Hz; 1.3% or less 4:1, 60/7000 Hz; SMPTE at 95% modulation, no audio filters required
DX 15	1.0% or less, 1:1, 60/7000 Hz; 1.4% or less 4:1, 60/7000 Hz; SMPTE at 95% modulation, no audio filters required
DX 200 to 2000	1.5% or less, 1:1, 60/7000 Hz; 2% or less, 4:1, 60/7000 Hz; SMPTE at 95% modulation, no audio filters required
Transient Intermodulation Distortion	
DX 10	0.3% or less at 95% modulation
DX 15	2.96/8.0 kHz, 4:1, no audio filters required. 0.5% or less at 95% modulation, 2.96/8.0 kHz, 4:1, no audio filters required
DX 200 to 2000	0.7% at 95% modulation, 2.96/8.0 kHz, 4:1, no audio filters required
Squarewave Overshoot	
DX 10/15	0.3% or less at 400 Hz, 85% modulation, measured pk-pk, no audio filters required
DX 200 to 2000	1% or less at 400 Hz, 80% modulation
Squarewave Tilt	
DX 10/15	0.5% or less at 40 Hz, 80% modulation, no audio filters required
DX 200 to 2000	2% or less at 50 Hz, 80% modulation, no audio filters required
Carrier Shift	
All three models	Less than 1%, referenced to 1 kHz, 100% modulation
Hum and Noise	
All three models	-65 dB or better below 100% modulation (unweighted)
Positive Peak Capability	
DX 10	+145% at 10 kW; +125% at 11 kW (program modulation)
DX 15	+135 at 15 kW (program modulation)
DX 200 to 2000	+125%

Duty Cycle	
DX 10/15	Continuous, 100% modulated sine wave
DX 200 to 2000	100% single tone for 10 minutes, followed by 75% single tone modulation for 50 minutes, at normal factory ambient temperature
Audio Performance Specifications Specifically for the DX 10/15 kW Models	
IQM	DX 10/15: -32 dB at 1 kHz, 95% modulation; -40 dB typical
Service Conditions	
Ambient Temperature	
DX 10/15	-10° C to +50° C; derated 2° C per 1,000 feet (305 m) of altitude
DX 200 to 2000	0° C to +45° C, (derate 2° C/1,000 ft of altitude)
Altitude	
DX 10/15	Up to 13,000 ft (3,962 m)
DX 200 to 2000	Up to 6,000 ft (1,829 m); higher altitudes available on request for quotation
Humidity Range	
DX 10/15	0 to 95%, non-condensing
DX 200 to 2000	0 to 95%, non-condensing
Dimensions (H x W x D)	
DX 10/15	78 x 72 x 33 in. (198 x 183 x 84 cm)
DX 200 to 2000	78 x 160 x 48 in. (198 x 406 x 122 cm)
Weight	
DX 10	1,535 lbs. (698 kg)
DX 15	1,700 lbs. (773 kg)
DX 200 to 2000	5,450 lbs. (2,472 kg) unpacked
Service Conditions Specifically for the DX 10/15 kW Models	
Temperature Rise	
(Inlet/Outlet Air)	DX 10/15: Approximately 6° C
RF Monitor Provisions	DX 10/15: Up to 10 volt RMS RF modulated output sample (constant sample level at high-, medium- or low-power setting) 5 volt RMS RF frequency monitor sample, nominal over specified power range
Power Consumption	
DX 10	11.6 kW typical at 10 kW, 0% modulation; 17.4 kW typical at 10 kW, 100% tone modulation
DX 15	17.4 kW typical at 15 kW, 0% modulation; 26.2 kW typical at 15 kW, 100% tone modulation
Notes	
All measurements made into test load at rated power.	
Noise may degrade if AC lines are unbalanced.	