



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

Flexiva DX™

Specifications

Specifications and designs are subject to change without notice

| General | |
|---|---|
| Type of Modulation | GatesAirpatented AM Digital amplitude modulation |
| Transmitter Type | Mediumwave, 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 preset power levels are provided | |
| Frequency Range | |
| DX 10/15 | 531 to 1705 kHz |
| DX 200 a 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, 3phase, 341 to 468 VAC, 3 phase, 4 wire |
| DX 200 to 2000 | 380 to 20 k VAC, 3phase user specified 360 to 500 VAC, 3phase 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 Frontpanel matching adjustments Antenna matching range 1.2:1 VSWR minimum |

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| 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 a 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% a 11 kW (program modulation) |
| DX 15 | +135 at 15 kW (program modulation) |
| DX 200 to 2000 | +125% |

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| 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 a +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%, noncondensing |
| DX 200 to 2000 | 0 to 95%, noncondensing |
| 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 lowpower 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. | |