



# FLEXIVA 3DX®

25, 50 and 100 kW Digital  
Solid-State AM Transmitters

The Flexiva 3DX™ family — comprising 25, 50 and 100 kW models — provides exceptional performance, efficiency and peace of mind.



## Flexiva 3DX® Product Features

### Intelligent User Interface

The entire Flexiva 3DX family — the 3DX 25, 50, and 100 — is designed for easy use through IntelliStat, the ultimate in control and diagnostic user interfaces. This combination of large, internationally identified control buttons, a status panel with selectable metering and ¼ VGA color display provides all important control and status parameters needed to know exactly how the transmitter is performing.

### A Reliable Reputation

Put your mind at ease with the Flexiva 3DXAM transmitters, a product that has a proven reputation of reliability. Digital Serial Adaptive modulation (DSAM) continuously monitors each serial modulation encoder and RF PA module, and makes automatic module reassignment should the need arise.

### Digital Exciter

The Flexiva 3DX 25, 50, and 100 exciters use Direct Digital Drive to accurately produce the RF signal. A low-level digital signal drives the PAs, eliminating the RF driver section — therefore reducing complexity. This approach improves signal linearity and bandwidth for digital broadcasting, and provides high overall efficiency. Additionally, it facilitates easier frequency changes.

Flexiva 3DX digital, solid-state AM transmitters features Direct Digital Drive (3D) technology, which provides a host of capabilities and benefits, including elimination of the RF driver section. This enhancement results in simpler design, greater efficiency and improved reliability — ultimately reducing operational costs. In addition, comprehensive diagnostics, which show exactly how the transmitter is performing at all times, along with hot-pluggable power amplifier (PA) modules and unprecedented redundancy, make all three models of the Flexiva 3DX family exceptionally easy to service.

- Patented Flexiva Direct Digital Drive modulation technology improves signal linearity and provides typical overall efficiency of 88%
- Patented Digital Serial Adaptive Modulation (DSAM) makes the Flexiva 3DX family virtually auto-servicing
- Hot-pluggable power amplifiers enable easy service without taking the transmitter off the air
- Optional dual digital exciters, dual low-voltage power supplies, dual binary amplifiers and dual binary amplifier power supplies available — all with automatic switchover — deliver unmatched redundancy

Complete IP-based control and monitoring of Flexiva 3DX transmitters in any location is possible by using the WEB Remote system tied to the station's LAN or directly to the Internet. All Flexiva 3DX transmitters are digitally modulated which makes transitioning to DRM™ or HD Radio™ effortless. Simply add the appropriate exciter, and Flexiva 3DX is on the air in digital broadcast mode.

## Safety

The Flexiva 3DX 25/50/100 transmitters are IEC215 compliant. The 3DX100 offers:

- a higher level of safety through the use of keylocks. This standard safety feature ensures that AC mains are disconnected while DC supply and RF outputs are mechanically earthed before access is allowed.

## Serial Modulation Encoder

Each encoder provides the direct drive to 16 RF power amplifier modules, which are turned ON or OFF to produce the modulated RF signal. All serial modulation encoders are interchangeable with the auto-servicing feature.

## RF Power Amplifiers

These modules protect themselves from over-temperature, loss of RF drive, loss of power and shorted RF output conditions, and are hotpluggable for on-air servicing. These modules are of simple construction with easy access to the individual RF output transistors.

## RF Combiner

Output from RF power amplifiers is summed in a simple, field-proven combiner. The combiner assembly is readily accessible from the rear of the transmitter for easier servicing. This allows individual RF motherboards to be easily removed.

## Output Network

The output network ensures the transmitter is properly matched into a 50 ohm antenna. The internal bandpass filter provides VSWR protection in addition to improving turnaround loss. The transmitter uses a minimum of frequency-determined components for ease of frequency changes in the field. A VSWR detector, carbon arc gap, arc detector and static drain choke are all provided for protection against lightning, static electricity and other transients.

## Main Power Supply

Voltage soft start protects the transmitter when it is turned on and eliminates separate step-start/run contractors and resistors. The power supply tolerates AC line fluctuations of +/5% (full performance) and +10/-15% (operational).

## Digital Broadcast Upgrade

The Flexiva 3DX transmitter family was built with digital broadcasting standards in mind. The simple migration to digital broadcast only requires the appropriate digital Modulator (HD Radio or DRM) to be connected to the inputs of the 3DX transmitter.

- GatesAir AM Transmitter Power Reduction Algorithms — U.S. Broadcasters Can Now Take Advantage of Energy-Saving MDCL Technology

Power efficiency is an extremely important factor for broadcasters, both in dollars spent annually on energy consumption and the ever-growing need to be environmentally conscious. GatesAir's Power Smart® technology continues to deliver energy-savings for broadcasters, and the company now extends Modulation Dependent Carrier Level (MDCL) power reduction algorithm technology to AM transmitter customers in the U.S.

# Flexiva 3DX®

## Specifications

*Specifications and designs are subject to change without notice*

General	
Type of Modulation	All Models: GatesAir-patented Direct Digital Drive Modulation
Transmitter Type	All Models: Medium Wave, 100% solidstate
Power Output Range	
3DX25/50	10 to 27.5kW and 10 to 55kW
3DX100	20 to 100kW; Each transmitter is capable of combined operation; three adjustable power levels are provided
Frequency Range	All Models: 531kHz to 1,610kHz. Supplied, tuned and tested on one frequency as specified

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AC Mains Input	
3DX25	208 to 240 VAC and 380 to 485 VAC (special order)
3DX50	380 to 485 VAC
3DX100	270 to 430 VAC and 460 to 500 VAC
Power Supply Variation	All Models: $\pm 5\%$ voltage, $\pm 5\%$ frequency meets full performance. +10/-15% voltage transmitter operational
Transient Protection	All Models: Meet ANSI/IEEE C62.41-1980 requirements; includes high-energy MOVs
Power Factor	
3DX 25/50	0.97 typical
3DX100	0.8 typically; 0.92 at 100kW, 95% modulation
Frequency Stability	
3DX25/50	$\pm 2$ PPM over frequency range, 0 to 50°C
3DX100	$\pm 2$ PPM over frequency range, 0 to 50°C standard; $\pm 0.25$ PPM optional All Models: Higher stability is available with external reference
Audio Input	
3DX 25/50	-10 to +10 dBm, adjustable transformerless input; 600 and 20k terminators provided
Optional AES3 digital input, 110 ohms, 3DX 25/50 only	-10 to +10 dBm, adjustable transformerless input; 600 and 20k terminators provided. AES3 optional
RF Output	
3DX25/50	3-1/8" EIA flange, bullet provided
3DX100	4-1/16" EIA flange, standard; 6 1/8" optional
RF Load	All Models: 50 ohms, fixed, unblanaced, resistive
VSWR	
3DX25/50	1.2:1 or better for full rated power. Typical 1.3:1
3DX100	1.3:1 minimum
Cabinet and Harmonic/Spurious Radiation	
3DX25/50	Meets or exceeds FCC, IC and other world standards
3DX100	Meets CCIR requirements
Overall AC Efficiency	
3DX25	85% or better at 25 kW, 87% typical
3DX50	86% or better at 50 kW. 88% typical
3DX100	86% or better at 100kW, 88% typical
Audio Performance	
Audio Frequency Response	
3DX25/50	+0.2/-0.8 dB at 95% modulation, 20Hz to 10kHz, reference 1kHz
3DX100	+0.2 /-0.8 dB at 95% modulation, 30Hz to 10kHz, reference 1kHz
Audio Harmonic Distortion	
3DX25/50	0.7% or less at 95% modulation, 20Hz to 10kHz; 0.3% typical at 55kw/25kw respectively
3DX100	0.8% or less at 95% modulation, 30Hz to 10kHz; 0.3% typical at 100kW
Intermodulation Distortion	
3DX25	1.0% or less 1:1, 60/7000Hz; SMPTE at 95% modulation, typical 0.4% 1:1, 1.0% 4:1 at 25kW
3DX50	1.0% or less 1:1, 60/7000Hz; 2% or less 4:1; SMPTE at 95% modulation, typically 0.4% 1:1, 0.7% 4:1
3DX100	1.0% or less 1:1 60/7000 Hz; 2% or less 4:1; SMPTE at 95% modulation, typically 0.4% 1:1, 0.7% 4:1