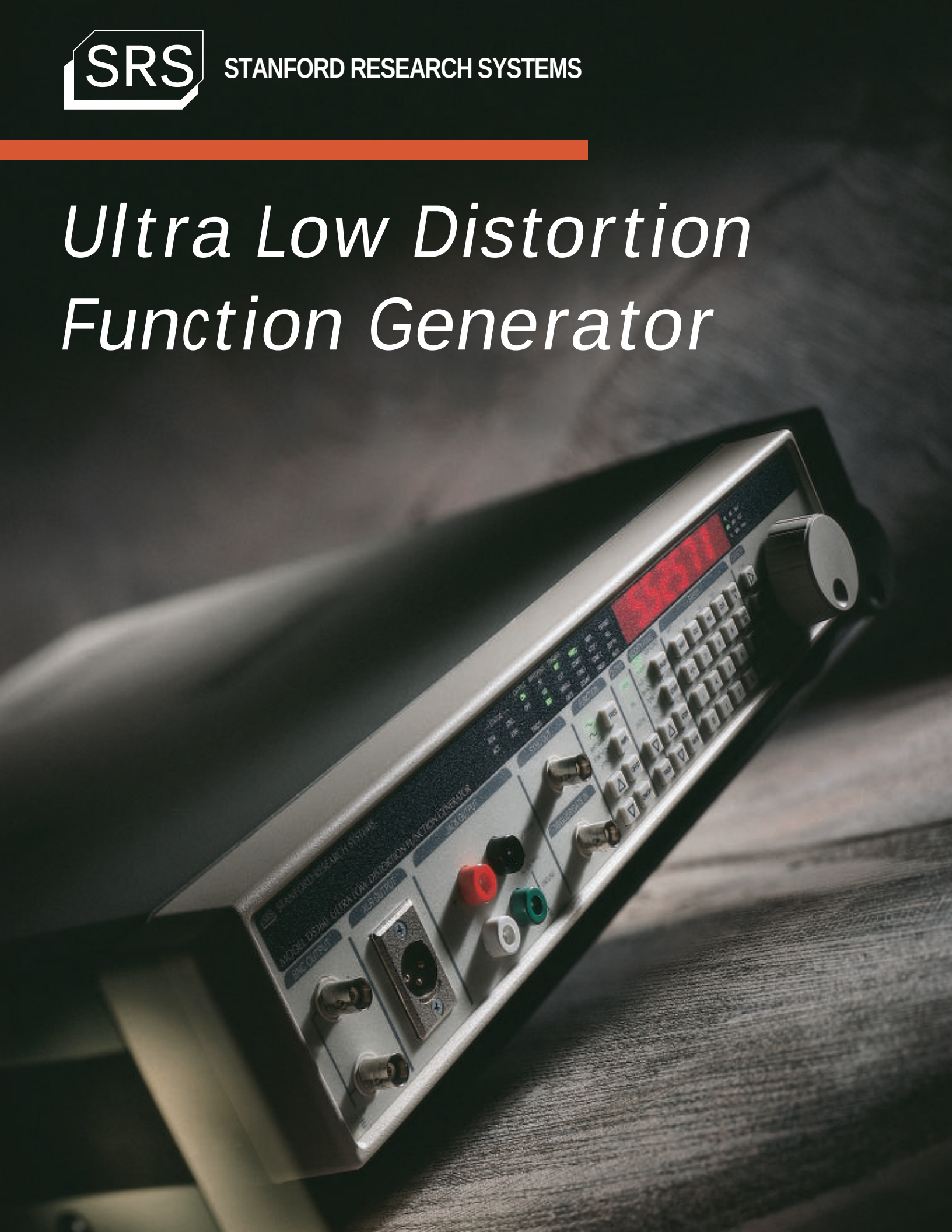
STANFORD RESEARCH SYSTEMS

Ultra Low Distortion Function Generator



200 kHz Ultra Low Distortion DDS Function Generator

0.001% THD (-100 dB)

- 25 ppm frequency accuracy
- 1 mHz to 200 kHz freq. range
- Sine, square, two-tone, burst
- Pink and white noise
- Log & linear freq. sweeps
- 10 µVpp to 40 Vpp
- SPDIF/EIAJ and AES-EBU digital output formats
- GPIB and RS-232 interfaces (standard)

The performance of a low distortion analog source and the precision of direct digital synthesis (DDS) is combined in a unique new instrument - the DS360 from SRS. With less than 0.001% total harmonic distortion (THD), 25 ppm frequency accuracy and a broad range of features including standard waveforms, sweeps and bursts, the DS360 is the ideal source for audio frequency applications.

Ultra low distortion and noise

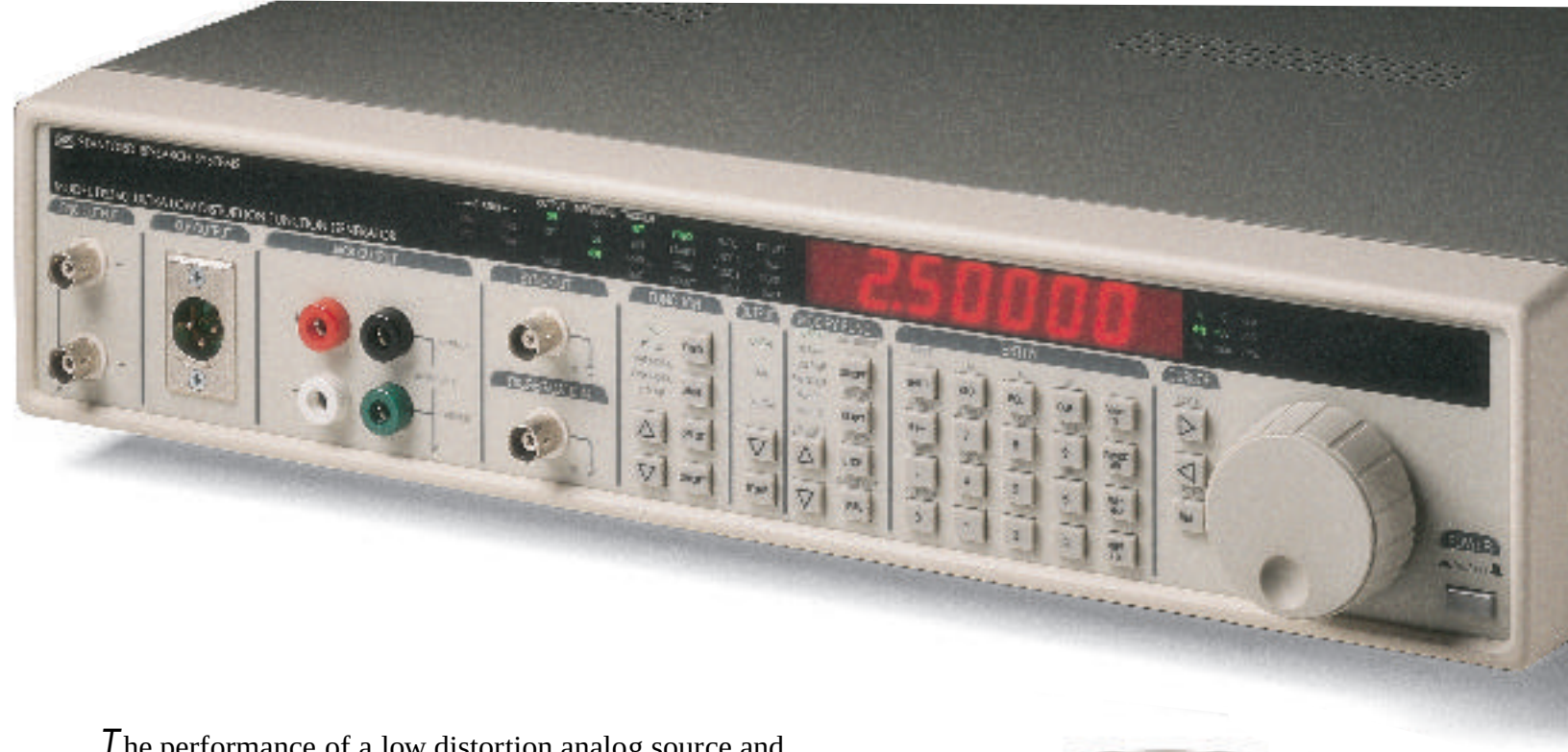
Unlike conventional RC oscillators, the DS360 uses digital signal processing and a precision 20-bit D/A converter to provide better than -100 dB distortion over the audio frequency range. And with its DDS architecture, the DS360 has the features and flexibility of a contemporary synthesized function generator. Every effort has been made to keep the DS360 as quiet as possible. Careful shielding and board layout keep the output noise to a minimum, making the DS360 the instrument of choice for audio research and development, manufacturing and automated testing.

Rock solid frequency stability

Low distortion analog sources have impressive THD specifications, but when it comes to frequency accuracy and resolution, they can't touch the precision of DDS generators. The DS360 delivers 0.0025% frequency accuracy over its entire frequency range. It also boasts six digit frequency resolution from 1 mHz to 200 kHz and a steady 25 ppm frequency stability. You can actually dial in 123,456 Hz from the front panel and have it mean something!

Not just sine waves

The DS360 generates clean sine and square waves as well as a two-tone signal for IMD testing. The two-tone signal is defined as either two sine waves or a sine and square wave. Both frequency and amplitude are



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Audio outputs

All functions and parameters are easily set using the front panel keypad and spin knob. For convenience, a wide variety of amplitude units including Vrms, Vpp, dBV, dBm and dBrel can be selected. Front panel outputs including XLR, BNC and dual banana jacks assure compatibility with any system. The outputs can be configured as balanced or unbalanced, with amplitudes from 20.0 µVpp to 80.0 Vpp (balanced), and 10.0 µVpp to 40.0 Vpp (unbalanced). Chassis ground and output common banana jacks are also provided. Rear panel digital outputs conform to AES-EBU and SPDIF/EIAJ formats. An XLR jack is provided for the AES-EBU output and both fiber optic and coaxial connectors are provided for the

Specifications

Frequency

Range	1 mHz to 200 kHz
Resolution	6 digits
Accuracy	25 ppm (0.0025%)

Amplitude

Unbalanced Outputs:	
50 Ω Load	5.0 µVpp - 14.4 Vpp
600 Ω Load	5.0 µVpp - 20.0 Vpp
Hi-Z Load	10.0 µVpp - 40.0 Vpp
Balanced Outputs:	
50 Ω Load	10.0 µVpp - 28.8 Vpp
150 Ω Load	10.0 µVpp - 28.8 Vpp
600 Ω Load	10.0 µVpp - 40.0 Vpp
Hi-Z Load	20.0 µVpp - 80.0 Vpp
Resolution	0.01 dB or 1 µV, whichever is greater
Accuracy	±0.1 dB (1.0%)

Distortion and Noise

THD:	
Unbalanced Outputs	-100 dB to 20 kHz
	-85 dB to 200 kHz
Balanced Outputs	-97 dB to 20 kHz
	-82 dB to 200 kHz
Broadband Noise	< 1 µV/√Hz (1 Vrms, 1 kHz)

Outputs

Configuration	Balanced and Unbalanced
Connectors	Floating BNCs, banana connectors, and XLR jack
Source Impedance:	
Balanced	50 Ω, 150 Ω, and 600 Ω
Unbalanced	25 Ω, 50 Ω, and 600 Ω
Max. Float Volt.	±40 VDC

Waveforms

Sine	0.001 Hz to 200 kHz
Square	0.001 Hz to 200 kHz, 700 ns rise time
Noise	White, pink, and bandlimited white
Two-Tone	Combination of two sine waves, or sine and square wave. Frequency and amplitude are independently set for each wave.
Burst:	
ON Cycles	0.5 or 1 to 65534 cycles
Repetition Rate	1 to 65534 cycles
Triggering	Internally triggered, externally triggered, or externally gated

Sweeps

Type	Linear or logarithmic
Range	1 mHz to 200 kHz
Rate	0.01 Hz to 3.1 kHz
Flatness	±0.1 dB (1.0%)

Other Outputs

Sync	TTL square wave (same frequency as output)
Trigger Out	Internal burst trigger
Trigger/Gate In	TTL pulse starts sweep or externally triggered burst. TTL high level activates externally gated burst.
Sweep	TTL pulse marks start of sweep
Digital Outputs	AES-EBU (balanced XLR) and SPDIF/EIAJ formats (RCA and optical)

General

Computer Interfaces	GPIB and RS-232. All instrument functions can be controlled over the interfaces.
Size	17"W x 3.5"H x 16.25"D
Weight	17 lbs.
Power	50 W, 100/120/220/240 VAC 50/60 Hz
Warranty	One year parts and labor on any defects in material or workmanship.

Ordering Information

DS360	Ultra low Distortion Function Generator
O360RM	Rack Mount

SRS **STANFORD RESEARCH SYSTEMS**