

STANFORD RESEARCH SYSTEMS

DS335

The Stanford Research Systems DS335 is a 3.1 MHz synthesized function generator that utilizes direct digital synthesis (DDS) to provide high-resolution, phase-continuous waveforms. It generates sine, square, triangle, and ramp waves, alongside a 10 MHz white noise source, with a frequency resolution of 1 μ Hz. The DS335 also includes linear and logarithmic frequency sweeps, binary FSK modulation, and optional GPIB and RS-232 digital interfaces for computer control.

SPECIFICATIONS

General

Interfaces	GPIB and RS-232 (with Option 01)
Display	12-digit green LED
Setup Storage	9 instrument configurations

Physical

Power Supply	100/120/220/240 VAC, 50/60 Hz, 22 W
Operating Temperature	0°C to 50°C °C
Dimensions (W×H×D)	216 mm × 89 mm × 330 mm mm
Weight	3.6 kg kg

Waveform Characteristics

Standard Waveforms	Sine, Square, Triangle, Ramp, Noise
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Frequency Specifications

Sine Frequency Range	1 μ Hz to 3.1 MHz
Square Frequency Range	1 μ Hz to 3.1 MHz
Triangle Frequency Range	1 μ Hz to 10 kHz
Ramp Frequency Range	1 μ Hz to 10 kHz
Noise Bandwidth	10 MHz
Frequency Resolution	1 μ Hz
Frequency Accuracy	± 5 ppm (0°C to 50°C)
Aging Rate	< 5 ppm/year

Amplitude & Output Characteristics

Amplitude Range (50 Ω)	50 mVpp to 10 Vpp
Amplitude Range (Open Circuit)	100 mVpp to 20 Vpp
Amplitude Resolution	3 digits
Amplitude Accuracy (at 1 kHz)	± 0.1 dB (1.15%) of setting for amplitudes > 0.1 Vpp
Sine Flatness (100 Hz to 1 MHz)	± 0.15 dB
Sine Flatness (1 MHz to 3.1 MHz)	± 0.3 dB
Output Impedance	50 Ω
DC Offset Range (50 Ω)	± 5 VDC
DC Offset Range (Open Circuit)	± 10 VDC
Output Protection	Short-circuit protected

Sine Wave Distortion & Purity

Harmonic Distortion (DC to 20 kHz)	<-55 dBc
Harmonic Distortion (20 kHz to 100 kHz)	<-50 dBc
Harmonic Distortion (100 kHz to 1 MHz)	<-40 dBc
Harmonic Distortion (1 MHz to 3.1 MHz)	<-35 dBc
Spurious Noise (<100 kHz)	<-55 dBc (DC to 1 MHz)
Phase Noise	<-50 dBc in a 30 kHz band centered on the carrier

Square Wave Characteristics

Square Wave Rise/Fall Time	<15 ns (10% to 90% at full output)
Square Wave Overshoot	<5% (at full output)
Square Wave Symmetry	50% $\pm$ 1%

Ramp Characteristics

Ramp Symmetry Range	0% to 100%
Ramp Symmetry Resolution	1%
Ramp Linearity	<0.1% of full scale

Noise Characteristics

Noise Type	Pseudo-random White Noise
Noise Flatness (DC to 100 kHz)	< ± 1.0 dB
Noise Flatness (100 kHz to 1 MHz)	< ± 2.0 dB
Noise Flatness (1 MHz to 10 MHz)	< ± 3.0 dB

Sweep & Modulation

Sweep Type	Linear or Logarithmic
Sweep Rate	0.01 Hz to 1 kHz
Sweep Time Range	1 ms to 100 s
Sweep Span	1 μ Hz to 3.1 MHz
Sweep Phase	Phase continuous
Modulation Type	Binary FSK (Frequency Shift Keying)
FSK Rate (Internal)	0.01 Hz to 50 kHz
FSK Rate (External)	DC to 1 MHz (TTL input)

Inputs & Outputs

Main Output Connector	Front-panel BNC
Sync Output	Front-panel BNC, TTL level
Trigger Input	Rear-panel BNC, TTL level
FSK Input	Rear-panel BNC, TTL level
External Clock Input Frequency	10 MHz
Clock Output Frequency	10 MHz
Clock Output Level	TTL (into 50 Ω)
FSK/Trig Input Impedance	>10 k Ω

Clock & Synchronization

External Clock Input	Rear-panel BNC, 10 MHz, -2 dBm to +15 dBm
Clock Output	Rear-panel BNC, 10 MHz, TTL level into 50 Ω

Physical & Environmental

Operating Humidity Range	Up to 95% non-condensing
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Connectivity

Standard Interfaces Option	Option 01 adds GPIB (IEEE-488) and RS-232
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Timebase

Standard Timebase Stability	± 5 ppm (0 $^{\circ}$ C to 50 $^{\circ}$ C)
Option 01 TCXO Frequency Stability	± 1 ppm (0 $^{\circ}$ C to 50 $^{\circ}$ C)
Option 01 TCXO Aging Rate	± 1 ppm/year
Standard Timebase Frequency	10 MHz

Phase

Phase Range	-360 $^{\circ}$ to +360 $^{\circ}$
Phase Resolution	0.001 $^{\circ}$

Sine Wave Performance

Spurious Components (DC to 1 MHz)	<-50 dBc
Spurious Components (1 MHz to 3.1 MHz)	<-40 dBc

DC Offset

DC Offset Resolution	3 digits
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Power

Power Consumption	35 W
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Auxiliary Inputs & Outputs

Sync Output Level	TTL
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TECHNOLOGY

Direct Digital Synthesis (DDS)

APPLICATIONS

Electronic testing, signal modulation, and waveform generation

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.