Synthesized Function Generators

DS335 — 3 MHz function generator

DS335 Function Generator

- **1 μHz to 3.1 MHz frequency range**
- **1 μHz frequency resolution**
- **Sine, square, ramp, triangle & noise**
- **Phase-continuous frequency sweeps**
- **FSK modulation**
- **10 Vpp into 50 Ω**
- **RS-232 and GPIB interfaces (opt.)**

- **DS335 ... $1095** *(U.S. list)*

The DS335 is a simple, low-cost, 3 MHz function generator designed for general benchtop or ATE applications. Based on a Direct Digital Synthesis (DDS) architecture, the DS335 includes features not normally found in function generators in this price range.

Basic functions include sine and square waves (up to 3.1 MHz), and ramps and triangles (up to 10 kHz). A 3.5 MHz Gaussian white-noise generator is also provided. All functions can be swept logarithmically or linearly in a phase-continuous fashion over the entire frequency range. A rear-panel SWEEP output marks the beginning of a sweep to allow synchronization of external devices. Both unidirectional and bidirectional sweeps can be selected.

Internal and external FSK modes allow the output frequency to be rapidly toggled between two preset values. Toggling is done either at a fixed, internal rate of up to 50 kHz, or externally via a rear-panel input.

Outputs have the low phase noise inherent to DDS. Wide band amplifiers maintain good pulse response and provide low distortion. The result is an output capable of driving 10 Vpp into a 50 Ω load, or 20 Vpp into a high-impedance load.

Both GPIB and RS-232 interfaces are available to provide complete control via an external computer. All instrument functions can be set and read via the computer interfaces.

Frequency Range

	Max. Freq.	*Resolution*
Sine	3.1 MHz	1 µHz
Square	3.1 MHz	1 µHz
Ramp	10 kHz	1 µHz
Triangle	10 kHz	1 µHz
Noise	3.5 MHz	(Gaussian weighting)

Output

Source impedance	50 Ω
Grounding	Output may float up to ±40 V (AC + DC)

Amplitude

Range	50 mVpp to 10 Vpp (50 Ω), 100 mVpp to 20 Vpp (Hi-Z)
Resolution	3 digits (DC offset = 0V)
Offset	±5 VDC (50 Ω), ±10 VDC (Hi-Z)
Offset resolution	3 digits
Accuracy	0.1 dB (sine output)

Sine Wave

Spurious response	< –65 dBc to 1 MHz < –55 dBc to 3.1 MHz
Harmonic distortion	
DC to 100 kHz	< –60 dBc
100 kHz to 1 MHz	< –50 dBc
1 MHz to 3 MHz	< –40 dBc
Phase noise	< –60 dBc (30 kHz band centered on carrier)

Square Wave

Rise/fall time	15 ns ± 5 ns (10 % to 90 %)
Asymmetry	<3 ns + 1 % of period
Overshoot	<5 % (full-scale output)

Ramps and Triangles

Rise/fall time	100 ns
Linearity	±0.1 % of full scale
Settling time	200 ns (0.5 % of final value)

FSK Modulation

Modes	Internal, External
Max rate	50 kHz, internal
External FSK	TTL input, 1 MHz (max.)

Sweeps

Type	Linear and logarithmic (phase continuous)
Span	Linear (full frequency range), log (6 decades)
Sweep rate	0.01 Hz to 1 kHz

Timebase Accuracy

Standard	±5 ppm (20 °C to 30 °C)
Optional	TCXO, 2 ppm stability, 2 ppm aging (20 °C to 50 °C)

General

Interfaces	Optional RS-232 and GPIB. All instrument functions are controllable over the interfaces.
Non-volatile memory	Up to nine sets of instrument settings may be stored and recalled.
Dimensions	8.5" × 3.5" × 13" (WHD)
Weight	8 lbs.
Power	22 W, 100/120/220/240 VAC, 50/60 Hz
Warranty	One year parts and labor on defects in materials and workmanship

DS335 rear panel (with opt. 01)

Ordering Information

DS335	3 MHz function generator	$1095
Option 01	GPIB and RS-232 interfaces	$495
Option 02	2 ppm TCXO timebase	$350
O335RMD	Double rack mount kit	$85
O335RMS	Single rack mount kit	$85