DS340 Synthesized Function and Arbitrary Waveform Generator

- **15.1 MHz frequency range**

- **1 µHz frequency resolution**

- **Arbitrary waveforms (up to 40 Msamples/s)**

- **Sine, square, ramp and triangle waveforms**

- **Linear and log sweeps**

- **FSK up to 1 MHz**

- **Optional RS-232 and IEEE-488 interfaces with Arbitrary Waveform Composer software**

Introducing the DS340 Synthesized Function and Arbitrary Waveform Generator from Stanford Research Systems.

Using Direct Digital Synthesis (DDS), the DS340 includes a wide range of features at a fraction of the cost of other function generators. It has all the performance you've come to expect from SRS, such as microhertz frequency resolution, phase continuous frequency shifting and arbitrary waveforms.

The sine and square wave functions have an extended frequency range of 15.1 MHz, while ramp and triangle waveforms are generated to 100 kHz. These standard functions along with a 10 MHz broadband (white) noise source are easily selected from the front panel.

Another advantage of the DS340 is its ability to generate arbitrary waveforms at rates up to 40 Msamples/s. Arbitrary patterns with as many as 16,300 points are easily generated with the Arbitrary Waveform Composer software package, which downloads waveforms

directly via the IEEE-488 or RS-232 interfaces.

Phase continuous linear and logarithmic frequency sweeps are available over the entire frequency range of the DS340. Sweeps may be triggered internally or from the front panel. Frequency shift keying (FSK) is also possible with the DS340. An internal rate generator allows switching at rates up to 50 kHz, while external switching can be clocked at rates up to 1 MHz.

Optional GPIB and RS-232 interfaces provide fast, easy communication with computers. The DS340 is fully programmable and ideally suited for automated systems and computer control.

The DS340 from Stanford Research Systems – higher performance, more features, outstanding value. For more information, or to place an order, call SRS at (408)744-9040.
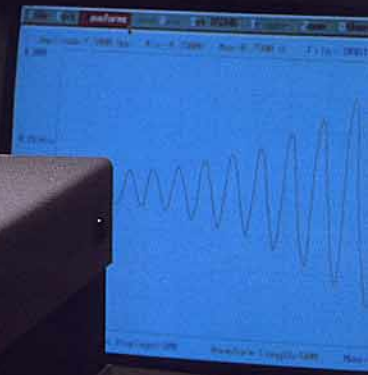
Specifications

FREQUENCY RANGE

Waveforms

Sine	1 µHz to 15.1 MHz
Square	1 µHz to 15.1 MHz
Ramp	1 µHz to 100 kHz
Triangle	1 µHz to 100 kHz
White noise	DC to 10 MHz
Frequency resolution	1 µHz

FUNCTION OUTPUT

Impedance	50 Ω
Range	50 mVpp to 10 Vpp into 50 Ω. 100 mVpp to 20 Vpp into High Z.
Accuracy	0.1 dB (sine output)
Resolution	12 bit (3 digits)
DC Offset	± 5 VDC (50 Ω)
Offset resolution	10 mV (50 Ω) 20 mV (High Z)
Isolation	40 V

SINE SPECTRAL PURITY

Spurious response	< - 65 dBc to 1 MHz (+ 6 dB/oct > 1 MHz)

Harmonic distortion

DC to 20 kHz	< - 70 dBc
20 kHz to 100 kHz	< - 60 dBc
100 kHz to 1 MHz	< - 50 dBc
1 MHz to 15.1 MHz	< - 40 dBc
Phase noise (30 kHz band centered on carrier)	< - 55 dBc

SQUARE WAVE

Rise/Fall time (10% to 90%)	15 ns ± 5 ns
Asymmetry	< (3 ns + 1%)
Overshoot (full scale output)	< 2%

RAMPS AND TRIANGLES

Rise/Fall time (10% to 90%)	45 ns ± 10 ns
Linearity	± 0.1% of full scale
Settling time	200 ns (0.5% of final value)

ARBITRARY WAVEFORMS

Sample rate	40 MHz/N
Waveform length	8 to 16,300 points
Vertical resolution	12 bits
Rise/Fall time (10% to 90%)	45 ns ± 10 ns
Programmability	GPIB or RS-232

FSK AND SWEEPS

FSK rate	Internal – 50 kHz External – 1 MHz
FSK rate resolution	2 Digits
Sweeps	Linear and logarithmic
Sweep spans	Linear - 1 µHz to 15.1 MHz Log - six decades
Sweep rate	0.01 Hz to 1 kHz

TIMEBASE

Accuracy	± 5 ppm (20 - 30°C)
Aging	5 ppm/year
Optional Timebase	TXCO: 2ppm stability Aging: 2 ppm/year (20 -50°C)

GENERAL

Front panel outputs	Function output Sync (TTL levels into 50 Ω)
Rear panel input	Trigger/FSK
Rear panel outputs	Sweep/FSK and Trigger
Interface option	GPIB and RS-232 interfaces. All instrument functions are controllable over the interfaces.
Display	8 digit LED display
Non-volatile memory	9 instrument settings
Power	35 Watts, 50/60 Hz. 100/120/220/240 VAC.
Dimensions	8.5"x3.5"x13" (WxHxL)
Weight	8.5 lbs.
Warranty	One year parts and labor on materials and workmanship.

Ordering Information

DS340
Synthesized
Function Generator

OPTIONS

-01	RS-232 and IEEE-488 interfaces with Arbitrary Waveform Composer software
-02	TCXO Timebase
-0345RMS	Single Rack Mount Kit
-0345RMD	Double Rack Mount Kit

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