ENGLISH

Datasheet

80MHz/50MHz Arbitrary Function Generator

Stock No. :	Model :
	AFG-31081
124-0227	AFG-31051

CE | RS-232 | GPIB | USB | PC Software | LabVIEW Driver

FEATURES

- Wide Frequency Range From 1μHz ~ 80/50MHz
- 1μHz Frequency Resolution Throughout Full Range
- Standard Waveform : Sine, Square, Triangle, Ramp, Pulse, Noise
- Built-In AM, FM, PWM, FSK, Sweep, Burst Functions
- 16bit, 200MSa/s, 1M-Point Deep Arbitrary Waveform
- DWR (Direct Waveform Reconstruction) Capability
- Arbitrary Waveform Editing PC Software
- 4.3" High Resolution LCD Display
- GPIB, RS-232C, USB Host/Device Standard Interfaces

Fulfilling Your Diversified Waveform Needs

The AFG-31000 Series is an Arbitrary Waveform and Digital-Synthesized Function Generator designed for industrial, scientific research and educational applications. The series comes with bandwidth of 80MHz for AFG-31081 and 50MHz for AFG-31051. The AFG-31000 Series, featuring 200MSa/s sample rate, 100MHz repetition rate by true point-by-point edit, 16-bit vertical resolution and 1M points waveform length, is a very useful and flexible signal source to meet diversified application needs in the market today.

The user-friendly operation, the On-Screen Help, and the multiple ways of arbitrary waveform editing make AFG-31000 just a plug-and-play equipment. The point by point waveform data entry or standard waveform clip piling through front panel operation, the CSV file waveform data download, the direct waveform reconstruction through DSO waveform data import, and the PC software edited waveform download are the 4 methods available for arbitrary waveform editing.

A 4.3-inch high resolution TFT LCD in the AFG-31000 front panel is used to display waveform and set parameters. The large and high-resolution screen is especially useful when the arbitrary waveform construction is done through front panel operation. The impedance of AFG-31000 can be selected between 50 Ohm and Hi-Z to ensure right impedance compatibility between AFG and DUT.

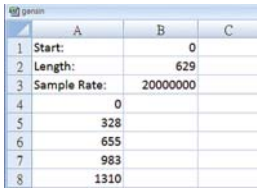
Easy Operation And Flexible Arbitrary Waveform Editing

The AFG-31000 presents four ways to generate custom arbitrary waveforms from direct front panel operation, PC software, a CSV file loading, and GBS-1000 Series oscilloscope input.

Front Panel Operation

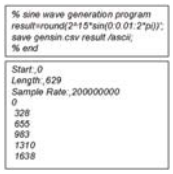
Panel Operation

CSV file Download



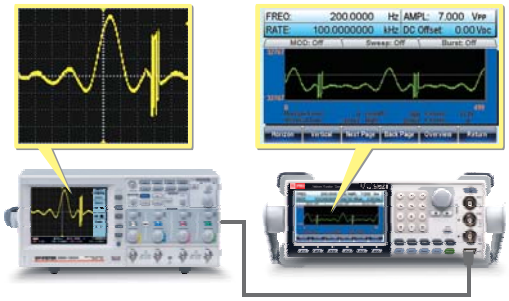
	A	B	C
1	Start:	0	
2	Length:	629	
3	Sample Rate:	20000000	
4	0		
5	328		
6	655		
7	983		
8	1310		

Supports CSV file



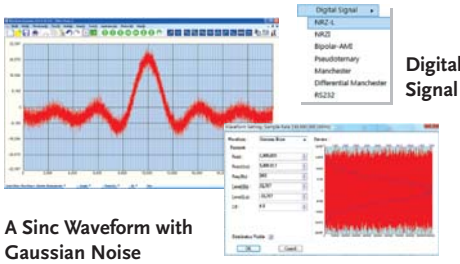
From Math Computing Software, Program and Result in CSV File

Direct Waveform Reconstruction (DWR)



Direct Waveform Reconstruction from the GBS-1000 Series

Arbitrary Waveform Editing PC Software



Digital Signal

A Sinc Waveform with Gaussian Noise

Gaussian Noise

APPLICATIONS

- Power Supply/Transformer Simulations
- Traditional/Motor Power Applications
- Laboratory and Educational Research
- Pulse Signal as Trigger or Synchronization
- Automotive Electronics Applications

SPECIFICATIONS

			AFG-31081	AFG-31051
WAVEFORMS	Standard Waveform		Sine, Square, Ramp, Pulse, Noise, DC, Sin(x)/x, Exponential Rise, Exponential Fall, Negative Ramp	
ARBITRARY WAVEFORMS	Sample Rate Repetition Rate Waveform Length Amplitude Resolution		200 MSa/s 100MHz 1M points 16 bits	
FREQUENCY CHARACTERISTICS	Range	Sine, Square	80MHz	50MHz
		Triangle, Ramp	1MHz	
	Resolution		1μHz	
	Accuracy	Stability	±1 ppm 0 ~ 50℃	
OUTPUT CHARACTERISTICS	Amplitude		Range 10 mVpp to 10 Vpp(into 50Ω) Accuracy ± 1% of setting ±1 mVpp (at 1 kHz,>10 mVpp) Resolution 0.1 mV or 4 digits Units Vpp, Vrms, dBm,	
	Offset		Range ±5 Vpk ac +dc (into 50Ω) Accuracy 1% of setting + 2 mV+ 0.5% of amplitude	
	Waveform Output SYNC Output		Protection Short-circuit protected ; overload relay auto-matically disables main output Level TTL-compatible into>1kΩ	
SINEWAVE CHARACTERISTICS	Harmonic Distortion		60 dBc DC ~ 1 MHz, Ampl<3 Vpp 55 dBc DC ~ 1 MHz, Ampl>3 Vpp 45 dBc 1MHz ~ 5 MHz, Ampl>3 Vpp 30 dBc 5MHz ~ 80 MHz, Ampl>3 Vpp	
SQUARE WAVE CHARACTERISTICS	Rise/Fall Time Duty Cycle Overshoot Asymmetry		<8 nS 20% ~ 80% < 5% 1% of period+1 ns	
RAMP CHARACTERISTICS	Linearity Variable Symmetry		< 0.1% of peak output 0% ~ 100%	
PULSE CHARACTERISTICS	Period Pulse Width		20ns ~ 2000s 8ns ~ 1999.9s	
AM MODULATION	Carrier Waveforms Modulating Waveforms Modulating Frequency Depth		Sine, Square, Triangle, Ramp, Pulse, Arb Sine, Square, Triangle, Up/Dn Ramp 2mHz ~ 20kHz 0% ~ 120.0%	
FM MODULATION	Carrier Waveforms Modulating Waveforms Modulating Frequency		Sine, Square, Triangle, Ramp Sine, Square, Triangle, Up/Dn Ramp 2mHz ~ 20kHz	
	Peak Deviation		DC ~ 80MHz	DC ~ 50MHz
PWM	Carrier Waveforms Modulating Waveforms Modulating Frequency Deviation		Square Sine, Square, Triangle, Up/Dn Ramp 2mHz ~ 20kHz 0% ~ 100.0% of pulse width	
FSK	Carrier Waveforms Modulating Waveforms Internal Rate		Sine, Square, Triangle, Ramp, Pulse 50% duty cycle square 2 mHz ~ 100 kHz	
	Frequency Range		DC ~ 80MHz	DC ~ 50MHz
SWEEP	Waveforms Type		Sine, Square, Triangle Linear or Logarithmic	
	Start / Stop FREQ		100μHz ~ 80 MHz	100μHz ~ 50MHz
	Sweep Time		1ms ~ 500s	
BURST	Waveforms		Sine, Square, Triangle, Ramp	
	Frequency		1μHz ~ 80MHz	1μHz ~ 50 MHz
	Burst Count Start / Stop Phase Internal Period Trigger Delay		1 ~ 1000000 cycles or Infinite -360.0 ~ +360.0° 1ms ~ 500s N-Cycle, Infinite : 0s ~ 85s	
MARKER OUTPUT	Type Level Fan-out		for ARB, Sweep TTL Compatible into 50Ω ≥4 TTL load	
SYSTEM CHARACTERISTICS	Impedance Store/Recall Interface Display		50Ω typical 10 Groups of Setting Memories GPIB, RS-232C, USB 4.3 inch TFT LCD, 480 x 3 (RGB) x 272	
POWER SOURCE	AC100 ~ 240V , 50 ~ 60Hz			
POWER CONSUMPTION	65VA			
DIMENSIONS & WEIGHT	265 (W) x 107 (H) x 374 (D)mm, Approx. 4kg			

Specifications subject to change without notice. FG-3000GD1DH

ORDERING INFORMATION

AFG-31081 80MHz Arbitrary Function Generator
AFG-31051 50MHz Arbitrary Function Generator

ACCESSORIES

Quick Start Guidex1, Power Cordx1, GTL-110 Test Leadx1

OPTIONAL ASSESSORIES

GTL-232	RS-232C Cable
GTL-246	USB Cable, USB 2.0 A-B Type Cable, 4P
GTL-248	GPIB Cable (2.0m)

FREE DOWNLOAD

PC Software Arbitrary Waveform Editing Software

P. O. Box 99
Corby
Northants NN17 9RS
England
Tel: +44(0)1536 201234