

AFG-2100/2000 Series



Innovation and Value in Waveform Design

The AFG-2100/2000 Series Arbitrary Function Generators are DDS based signal generators covering the output of Sine, Square, Ramp, Noise and 20MSa/s Arbitrary waveform. The 0.1Hz resolution and 1% ~ 99% adjustable duty cycle of Square(Pulse) waveform greatly extend its application range in various fields.

The AFG-2100/2000 Series includes 6 models in three frequency bands of 5MHz, 12MHz and 25MHz. Besides the features of AFG-2000, AFG-2100 also carries additional features of AM/FM/FSK Modulation, Sweep and Frequency Counter. The 3.5" color LCD will clearly display the digital waveform parameters set through front panel. The entire Series is equipped with USB Device interface for remote control and importing waveform data from PC.

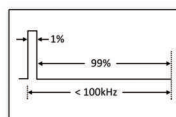
Built-In Arbitrary Waveform Function

20MSa/s sampling rate, 10 bit vertical resolution and 4k point memory equip AFG-2100/2000 the arbitrary waveform capacity. User can create waveform by mean of either point by point input from front panel or PC software.



1% Adjustable Duty Cycle of Square Wave

The AFG-2100/ 2000 Series provides 1% ~ 99% variable duty cycle for its square waveform output. This feature allows generating the pulse waveform to simulate a spike signal or a transient signal.



Fully Digital Entry Design

The fully digital entry design of AFG-2100/2000 Series improves the setting uncertainty of conventional Function Generator and therefore significantly increases the accuracy of its waveform output. The 3.5" LCD screen allows user to see the parameter value change in detail when the adjustment is in progress.



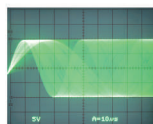
Amplitude and DC Offset Display

In addition to the setting parameters, the amplitude, DC offset values are also displayed on the LCD screen. Three amplitude units, Vpp, Vrms and dBm, can be selected and exchanged.



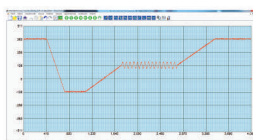
AM/FM/FSK, Sweep, Counter(AFG-2100 only)

AFG-2100 models are equipped with additional AM/FM/FSK Modulation, Sweep and Frequency Counter functions. The 150MHz frequency counter saves user the cost of purchasing a standalone frequency counter.



Arbitrary Waveform Editing Software

A free arbitrary waveform editing software is available which is used to edit the arbitrary waveform on PC. After completing the waveform editing, it can be downloaded to AFG through USB interface for waveform output.



FEATURES

- 0.1Hz ~ 5/12/25 MHz with in 0.1Hz Resolution
- Sine, Square, Ramp, Noise and Arbitrary Waveform
- 20MSa/s Sampling Rate, 10 bit Vertical Resolution and 4k point Memory for Arbitrary Waveform
- 1% ~ 99% Adjustable Duty Cycle for Square Waveform
- Waveform Parameter Setting Through Numeric Keypad Entry & Knob Selection
- Amplitude, DC Offset and Other Key Setting Information Shown on the 3.5" LCD Screen Simultaneously
- AM/FM/FSK Modulation, Sweep, and Frequency Counter functions (AFG-2100 only)
- USB Device Interface for Remote Control and Waveform Editing
- PC Arbitrary Waveform Editing Software



AFG-2000 Series Front

APPLICATIONS

- Audio Products Frequency Characteristics Measurement
- Pulse Signal as Trigger or Synchronization Signal for Electronic Product Testing
- Pulse Noise Simulation
- Reference Clock Signal of Electronic Device
- Vibration Signal Simulation
- Noise Simulation for Communication System Educational Lab



SPECIFICATIONS							
		AFG-2100 Series			AFG-2000 Series		
MODELS		AFG-2105	AFG-2112	AFG-2125	AFG-2005	AFG-2012	AFG-2025
WAVEFORMS		Sine, Square, Ramp, Noise, Arbitrary Waveform					
ARITRARY FUNCTION	Sample Rate Repetition Rate Waveform Length Amplitude Resolution	20MSa/s 10MHz 4k point 10 bit					
FREQUENCY CHARACTERISTICS	Range	0.1Hz~5MHz	0.1Hz~12MHz	0.1Hz~25MHz	0.1Hz~5MHz	0.1Hz~12MHz	0.1Hz~25MHz
	Sine/Square Ramp Resolution Accuracy Stability Aging Tolerance	0.1Hz ~ 1MHz 0.1 Hz ±20ppm ±1 ppm, per 1 year ≤1mHz					
OUTPUT CHARACTERISTICS	Amplitude	Range 1mVpp~10Vpp(into 50Ω), 0.1Hz~20MHz; 2mVpp~20Vpp(open-circuit), 0.1Hz~20MHz 1mVpp~5Vpp(into 50Ω), 20MHz~25MHz; 2mVpp~10 pp(open-circuit), 20MHz~25MHz ±2% of setting ±1mVpp;(at 1kHz,>10mVpp)					
		Accuracy Resolution Flatness 0.1mV or 3digits ±1%(0.1dB)≤100kHz; ±3%(0.3dB)≤5MHz; ±4%(0.4dB)≤12MHz; ±20%(2dB)≤20MHz; ±5%(0.4dB)≤25MHz; (sine wave relative to 1 kHz) Vpp, Vrms, dBm					
	Offset	Units Range ±5Vpk ac+dc(into 50Ω); ±10Vpk ac+dc(open circuit); ±2.5Vpk ac+dc(into 50Ω) for 20MHz~25MHz; ±5Vpk ac+dc(open circuit) for 20MHz~25MHz					
	Waveform Output	Accuracy Impedance Protection(main output) 2% of setting + 5mV+ 0.5% of amplitude 50Ω typical (fixed); >300kΩ (output disabled)					
	SYNC Output	Level Impedance Rise or Fall Time Short-circuit protected ; Overload relay auto matically disables main output TTL-compatible into >1kΩ 50Ω nominal ≤25ns					
SINE WAVE CHARACTERISTICS	Harmonic Distortion	-55 dBc DC ~ 200kHz, Ampl > 0.1Vpp; -50 dBc 200kHz ~ 1MHz, Ampl > 0.1Vpp -35 dBc 1MHz ~ 5MHz, Ampl > 0.1Vpp; -30 dBc 5MHz ~ 25MHz, Ampl > 0.1Vpp					
SQUAREWAVE CHARACTERISTICS	Rise/Fall Time Overshoot Asymmetry Variable Duty Cycle	≤25ns at maximum output (into 50Ωload) < 5% 1% of period+1 ns 1%~99%≤100kHz ; 20.0%~80.0%≤5MHz ; 40.0%~60.0%≤10MHz ; 50%≤25MHz (1% Resolution for full Frequency Range)					
RAMP CHARACTERISTICS	Linearity Variable Symmetry	< 0.1% of peak output 0%~100%(0.1% Resolution)					
AM MODULATION	Carrier Waveforms Modulating Waveforms Modulating Frequency Depth Source	Sine, Square, Triangle Sine, Square, Triangle 2 mHz~20 kHz (Int); DC~20KHz (Ext) 0%~120.0% Internal/External			—		
FM MODULATION	Carrier Waveforms Modulating Waveforms Modulating Frequency Deviation Source	Sine, Square, Triangle Sine, Square, Triangle 2 mHz~20 kHz (Int); DC~20KHz (Ext) DC to Max Frequency Internal/External			—		
SWEEP	Waveforms Type Start/Stop Frequency Sweep Time Source	Sine, Square, Triangle Linear or Logarithmic 0.1Hz to Max Frequency 1ms~500s Internal/External			—		
FSK	Carrier Waveforms Modulating Waveforms Internal Rate Modulation Rate Frequency Range Source	Sine, Square, Triangle 50% duty cycle square 2mHz~20kHz 2mHz~100kHz(INT); DC~100kHz(Ext) 0.1Hz~Max Frequency Internal/External			—		
FREQUENCY COUNTER	Range Accuracy Time base Resolution Input Impedance Sensitivity	5Hz~150MHz Time Base accuracy ± 1count ±20ppm(23°C±5°C)after 30minutes warm up 100nHz for 1Hz, 0.1Hz for 100MHz 1KΩ/1pf 35mVrms~30Vms (5Hz~150MHz)			—		
STORE/RECALL	10 Groups of Setting Memories						
INTERFACE	USB(Device)						
DISPLAY	LCD						
POWER SOURCE	AC100 ~ 240V , 50 ~ 60Hz						
POWER CONSUMPTION	25 VA						
OPERATING ENVIRONMENT	Temperature to satisfy the specification: 18~28°C; Operating temperature: 0~40°C Relative Humidity: ≤80%, 0~40°C; ≤70%, 35~40°C; Installation category: CAT II						
OPERATING ALTITUDE	2000 meters						
STORAGE TEMPERATURE	-10~70°C, Humidity: ≤70%						
DIMENSIONS & WEIGHT	266(W)×107(H)×293(D) mm : Approx. 2.5 kg						

Specifications subject to change without notice. FG-2000GD3DH

ORDERING INFORMATION		ACCESSORIES	
AFG-2005	5MHz Arbitrary Waveform Function Generator	CD (user manual + software) × 1, Quick Start Guide × 1, Power cord × 1	
AFG-2105	5MHz Arbitrary Waveform Function Generator	AFG-2100 Series - GTL-101 Test Lead × 2, Instruction Manual × 1, Power cord × 1	
AFG-2012	12MHz Arbitrary Waveform Function Generator	AFG-2000 Series - GTL-101 Test Lead × 1, Instruction Manual × 1, Power cord × 1	
AFG-2112	12MHz Arbitrary Waveform Function Generator	OPTIONAL ASSESSORIES	
AFG-2025	25MHz Arbitrary Waveform Function Generator	GTL-246	USB Cable, USB 2.0 Type A - Type B, 4P
AFG-2125	25MHz Arbitrary Waveform Function Generator	FREE DOWNLOAD	
		PC Software	FreeWave software Driver USB driver

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