



## 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.

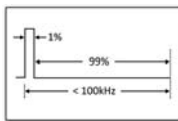
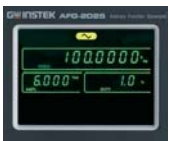
### Built-In Arbitrary Waveform Function

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.



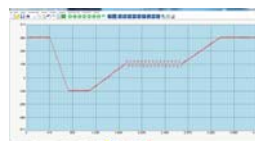
### AM/FM/FSK, Sweep, Counter(AFG-2100 only)

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.



## AFG-2100/2000 Series

### 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			20MSa/s 10MHz 4k point 10 bit							
FREQUENCY CHARACTERISTICS			Range	Sine/Square	0.1Hz~5MHz	0.1Hz~12MHz	0.1Hz~25MHz	0.1Hz~5MHz	0.1Hz~12MHz	0.1Hz~25MHz
			Resolution	Ramp	0.1Hz ~ 1MHz					
			Accuracy	Sine,Square,Ramp	0.1Hz					
				Stability	±20ppm					
				Aging	±1ppm, per 1 year					
				Tolerance	≤ 10mHz					
OUTPUT CHARACTERISTICS			Amplitude	Range	≤ 20MHz : 1mVpp~10Vpp(50Ω); 2mVpp~20Vpp(open-circuit)					
				Accuracy	≤ 25MHz : 1mVpp~5Vpp(50Ω); 2mVpp~10Vpp(open-circuit)					
				Resolution	±2% of setting ±1mVpp;(at 1kHz/into 50Ω without DC offset)					
				Flatness	1mV or 3digits					
				Units	±1%(0.1dB)≤ 100kHz; ±3%(0.3dB)≤ 5MHz; ±4%(0.4dB)≤ 12MHz; ±20%(2dB)≤ 20MHz;					
			Offset	Range	±5%(0.4dB)≤ 25MHz; (sine wave relative to 1 kHz/into 50Ω)					
					Vpp, Vrms, dBm					
			Waveform Output	Accuracy	±5Vpk ac+dc(into 50Ω); ±10Vpk ac+dc(open circuit); ±2.5Vpk ac+dc(into 50Ω) for					
				Impedance	20MHz~25MHz; ±5Vpk ac+dc(open circuit) for 20MHz~25MHz					
				Protection(main output)	2% of setting+10mV+0.5% of amplitude					
			SYNC Output	Level	50Ω typical (fixed); >300kΩ (output disabled)					
				Impedance	Short-circuit protected ; Overload relay auto matically disables main output					
				Rise or Fall Time	TTL-compatible into >1kΩ					
SINE WAVE CHARACTERISTICS			Harmonic Distortion		50Ω nominal					
					≤ 25ns					
SQUAREWAVE CHARACTERISTICS			Rise/Fall Time		-55 dBc DC ~ 200kHz, Ampl > 0.1Vpp; -50 dBc 200kHz ~ 1MHz, Ampl > 0.1Vpp					
			Overshoot		-35 dBc 1MHz ~ 5MHz, Ampl > 0.1Vpp; -30 dBc 5MHz ~ 25MHz, Ampl > 0.1Vpp					
			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		< 0.1% of peak output					
			Variable Symmetry		0%~100%(0.1% Resolution)					
AM MODULATION			Carrier Waveforms		Sine, Square, Triangle					
			Modulating Waveforms		Sine, Square, Triangle					
			Modulating Frequency		2 mHz~20 kHz (Int); DC~20KHz (Ext)				—	
			Depth		0%~120.0%					
			Source		Internal/External					
FM MODULATION			Carrier Waveforms		Sine, Square, Triangle					
			Modulating Waveforms		Sine, Square, Triangle					
			Modulating Frequency		2 mHz~20 kHz (Int); DC~20KHz (Ext)				—	
			Deviation		DC to Max Frequency					
			Source		Internal/External					
SWEEP			Waveforms		Sine, Square, Triangle					
			Type		Linear or Logarithmic					
			Start/Stop Frequency		0.1Hz~Max Frequency				—	
			Sweep Time		1ms~500s					
			Source		Internal/External					
FSK			Carrier Waveforms		Sine, Square, Triangle					
			Modulating Waveforms		50% duty cycle square					
			Modulation Rate		2mHz~100kHz(Int); DC~100kHz(Ext)				—	
			Frequency Range		0.1Hz~Max Frequency					
			Source		Internal/External					
FREQUENCY COUNTER			Range		5Hz~150MHz					
			Accuracy		Time Base accuracy ± 1count					
			Time base		±20ppm(23°C±5°C)after 30minutes warm up					
			Resolution		100nHz for 1Hz, 0.1Hz for 100MHz				—	
			Input Impedance		1KΩ					
			Sensitivity		35mVrms~30Vrms (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 x 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		
AFG-2025	25MHz Arbitrary Waveform Function Generator		
AFG-2125	25MHz Arbitrary Waveform Function Generator		
		OPTIONAL ASSESSORIES	
		GTL-246	USB Cable, USB 2.0 Type A - Type B, 4P
		FREE DOWNLOAD	
PC Software	Arbitrary Waveform Editing Software	Driver	USB driver