AFG-2000 Series
Arbitrary Function Generator

GW INSTEK

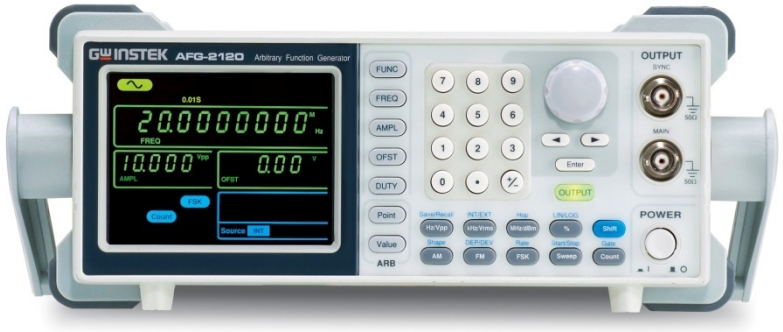
Made to Measure

固緯電子實業股份有限公司

Outline

1. **Basic**
2. Specification
3. Feature, Advantage, Benefit
4. Applications

AFG-2000 Series



AFG-2100 Series

AFG-2000 Series

Series	Model	Frequency	Channel	AM/FM/FSK	Sweep/Counter
AFG-2100	AFG-2105	5MHz	1	V	V
	AFG-2112	12MHz	1	V	V
	AFG-2125	25MHz	1	V	V
AFG-2000	AFG-2005	5MHz	1		
	AFG-2112	12MHz	1		
	AFG-2125	25MHz	1		

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AFG-2000 Main Specification

Model	AFG-2100	AFG-2000
Channel	1 ch	1 ch
Sine/Square	0.1Hz ~ 5 / 12 / 25MHz	0.1Hz ~ 5 / 12 / 25MHz
Triangle/Ramp	0.1Hz to 1MHz	0.1Hz to 1MHz
Frequency Resolution	0.1 Hz	0.1 Hz
Amplitude Range	≤20MHz 1 mVpp to 10 Vpp(into 50Ω) 2 mVpp to 20 Vpp(open-circuit) ≤25MHz 1 mVpp to 5 Vpp(into 50Ω) 2 mVpp to 10 Vpp(open-circuit)	≤20MHz 1 mVpp to 10 Vpp(into 50Ω) 2 mVpp to 20 Vpp(open-circuit) ≤25MHz 1 mVpp to 5 Vpp(into 50Ω) 2 mVpp to 10 Vpp(open-circuit)
Accuracy	± 2%	± 2%
Built-in ARB	Support	Support
Sampling Rate	20Msa/s	20Msa/s
Memory Length	4k points	4k points
Amplitude Resolution	10 Bits	10 Bits
Display	3.5“ 3 color LCD	3.5“ 3 color LCD
Modulation	AM/FM/FSK	-
Sweep	Log/Linear	-
External Counter	150MHz	-
Interface	USB Device	USB Device
Size	266(W)×107(H)×293(D) mm	266(W)×107(H)×293(D) mm
Weight	3.2kg	3.1kg

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Specification

- Support 5 / 12 / 25MHz three frequency range
- Frequency Resolution : 0.1Hz in total range
- 20M Sa/s sampling, 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

Compare with SFG-2000

	SFG-2000 Series								AFG-2000 Series					
	2004	2007	2010	2020	2104	2107	2110	2120	2005	2012	2020	2105	2112	2120
Frequency Range	0.1Hz | 4MHz	0.1Hz | 7MHz	0.1Hz | 10MHz	1Hz | 20MHz	0.1Hz | 4MHz	0.1Hz | 7MHz	0.1Hz | 10MHz	1Hz | 20MHz	0.1Hz | 5MHz	0.1Hz | 12MHz	0.1Hz | 25MHz	0.1Hz | 5MHz	0.1Hz | 12MHz	0.1Hz | 25MHz
Resolution	0.1Hz			1Hz	0.1Hz			1Hz	0.1Hz					
Display	LED								Color LCD					
Operation	Digital/Analogy Operation								Full Digital Operation					
Variable Offset	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Variable Duty Cycle	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Voltage Display									●	●	●	●	●	●
SYNC(TTL) Output	●	●	●	●	●	●	●	●	●	●	●	●	●	●
CMOS Output	●	●	●	●	●	●	●	●						
Store/Recall	●	●	●	●	●	●	●	●	●	●	●	●	●	●
AM Modulation					●	●	●	●				●	●	●
FM Modulation					●	●	●	●				●	●	●
FSK												●	●	●
SWEEP					●	●	●	●				●	●	●
Frequency Counter					●	●	●	●				●	●	●
Arbitrary Function									●	●	●	●	●	●
USB Interface									●	●	●	●	●	●

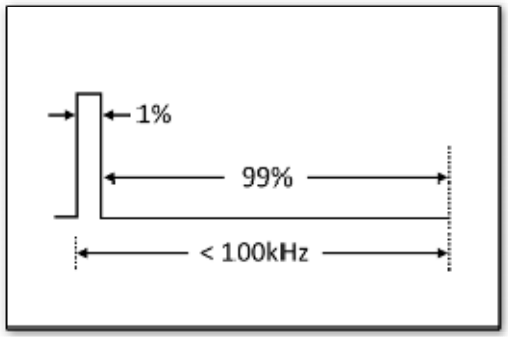
Most of AFG-2000 specifications can cover SFG-2000's specification

Advantage & Benefits

- **Arbitrary Waveform Function**
- The 20MSa/s sampling rate, 10 bit vertical resolution and 4k point waveform memory allow user to create the needed waveform point by point through keypad entry on the front panel, or to do waveform editing on the PC and download the waveform data to the AFG-2100/2000 Series, for arbitrary waveform output.

Advantage & Benefits

- **Adjustable Duty Cycle**
- The AFG-2100/2000 Series is able to provide a 1% ~ 99% variable duty cycle for its square waveform output. This feature allows the AFG-2100/2000 Series to be used as a Pulse Generator to create pulse waveform simulating a spike signal or a transient signal in most of the generic applications.



Advantage & Benefits

- **Parameter Setting**
- The keypad 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. Besides keypad entry, the AFG-2100/2000 Series also offers the knob selection convenience with a digital knob design, which allows user to see the parameter value change in detail on the 3.5” LCD screen when the adjustment is in progress.

Advantage & Benefits

- **Waveform Amplitude & DC Offset**
- AFG-2100/2000 Series is able to show output waveform amplitude, DC offset and other key setting information on the LCD screen simultaneously. This provides the convenience for user to know what signal is being sent out at the output terminal without the need to check the waveform through an oscilloscope.

Advantage & Benefits

- **AM/FM/FSK Modulation, Sweep & Frequency Counter (Only for AFG-2100)**
- The AM/FM modulated signal provides a means for basic modulation circuit tests and experiments. Whereas, the FSK modulated signal is offered as a convenient source for the performance evaluation of digital modulation circuits. The Sweep function, with accurate frequency sweep range & sweep time, adequately fits a lot of basic applications in the market, such as sweep-tone test of the speaker in a 20Hz ~ 20kHz sweep range. The built-in frequency counter of AFG-2100 is able to measure the frequency of an external signal up to 150MHz.

Advantage & Benefits

- **USB Interface**
- The AFG-2100/2000 Series provides a USB Device Interface, which allows the programming of remote control or ATE of the product. An arbitrary waveform editing software is available to facilitate the waveform creation task. After the waveform editing is completed on the PC, the waveform data can be downloaded through USB Interface to the AFG-2100/200 for arbitrary waveform output.

Advantage & Benefits

- **Arbitrary Waveform Editing PC Software**
- The arbitrary waveform editing software contains not only waveform drawing tools but also a wide variety of waveform editing functions. The most commonly used waveforms, including Rayleigh, Gaussian, Normal Noise, Pseudo Ternary, Bipolar AMI, Manchester, Differential Manchester, RS-232, and NRZ etc., are available in the library for user to tailor specific waveforms as needed.

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Applications

- Audio products frequency characteristics measurement. (by sweep function)
- Pulse signal as trigger or synchronization signal for electronic product testing. (by small duty cycle square wave)
- Pulse noise simulation. (by small duty cycle square wave)
- Reference clock signal of electronic device (usually 10MHz for “reference in”, like PLL design)
- Vibration signal simulation (by low but stable frequency, says 0.1Hz)
- Noise simulation for communication system (by noise in arbitrary waveform editing)
- Educational lab.