

ARBITRARY FUNCTION GENERATOR



AFG-2100/2000 Series

FEATURES

- 0.1Hz ~ 5/12/25 MHz with in 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

GW INSTEK
Simply Reliable



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.

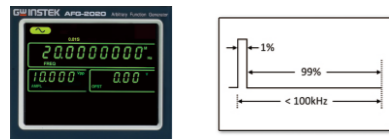
Built-In Arbitrary Waveform Function

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.



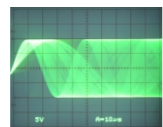
Amplitude and DC Offset Display

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.



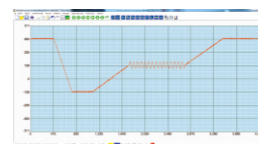
AM/FM/FSK, Sweep, Counter(AFG-2100 only)

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-2000/2100 Series

SPECIFICATIONS

| | | AFG-2105 | AFG-2112 | AFG-2125 | AFG-2005 | AFG-2012 | AFG-2025 | |
|--------------------------------|--|---|---|-------------|------------|-------------|-------------|--|
| WAVEFORMS ARITRARY FUNCTION | Sample Rate | Sine, Square, Ramp | | | | | | |
| | Repetition Rate | 20 MSa/s | | | | | | |
| FREQUENCY CHARACTERISTICS | Waveform Length | 10MHz | | | | | | |
| | Amplitude Resolution | 4k point | | | | | | |
| | Range | 0.1Hz~5MHz | 0.1Hz~12MHz | 0.1Hz~25MHz | 0.1Hz~5MHz | 0.1Hz~12MHz | 0.1Hz~25MHz | |
| | Resolution | 1MHz | | | | | | |
| OUTPUT CHARACTERISTICS | Stability | ±20 ppm | | | | | | |
| | Aging | ±1 ppm, per 1 year | | | | | | |
| | Tolerance | < 10 mHz | | | | | | |
| | Amplitude | Range | ≤20MHz:1mVpp~10Vpp(into 50Ω);2mVpp~20Vpp(open-circuit) | | | | | |
| SYNC Output | Accuracy | ≤25MHz:1mVpp~5Vpp(into 50Ω);2mVpp~10Vpp(open-circuit) | | | | | | |
| | Resolution | ±1% of setting ±1 mVpp;(at 1 kHz,>10 mVpp) | | | | | | |
| | Flatness | 0.1 mV or 3 digits | | | | | | |
| | Units | ±1%(0.1dB)≤100kHz;± 3%(0.3dB)≤5MHz;± 5%(0.4dB)≤12MHz | | | | | | |
| Waveform Output | Offset | ±20%(2dB)≤20MHz;± 5%(0.4dB)≤25MHz;(sine wave relative to 1 kHz) | | | | | | |
| | Range | Vpp, Vrms, dBm | | | | | | |
| | Accuracy | ±5 Vpk ac +dc (into 50Ω);±10Vpk ac +dc (Open circuit) | | | | | | |
| | Impedance Protection | 1% of setting + 2 mV+ 0.5% of amplitude | | | | | | |
| Level | Waveform | 50Ω typical (fixed); > 10MΩ (output disabled) | | | | | | |
| | Impedance | Short-circuit protected; Overload relay auto-matically disables main output | | | | | | |
| Rise or Fall Time | Level | TTL-compatible into>1kΩ | | | | | | |
| | Impedance | 50Ω nominal | | | | | | |
| SINEWAVE CHARACTERISTICS | Harmonic Distortion | ≤25ns at maximum output (into 50Ωload) | | | | | | |
| | Rise/Fall Time | < 5% | | | | | | |
| SQUAREWAVE CHARACTERISTICS | Overshoot | 1% of period+1 ns | | | | | | |
| | Asymmetry | 1%~99%≤100kHz; 10%~90%≤2MHz;20.0%~80.0%≤5MHz ; 40.0%~60.0%≤10MHz ; 50%≤ 25MHz ; | | | | | | |
| RAMP CHARACTERISTICS | Variable Duty Cycle | (1% Resolution for full Frequency Range) | | | | | | |
| | Linearity | < 0.1% of peak output | | | | | | |
| AM MODULATION | Variable Symmetry | 0%~100%(0.1% Resolution) | | | | | | |
| | Carrier Waveforms | Sine, Square, Triangle | | | | | | |
| FM MODULATION | Modulating Waveforms | Sine, Square, Triangle | | | | | | |
| | Modulating Frequency | 2 mHz to 20 kHz (Int);DC to 20KHz (Ext) | | | | | | |
| FSK | Depth | 0% to 120.0% | | | | | | |
| | Carrier Waveforms | Sine, Square, Triangle | | | | | | |
| SWEEP | Modulating Waveforms | Sine, Square, Triangle | | | | | | |
| | Modulating Frequency | 2 mHz to 20 kHz (Int);DC to 20KHz (Ext) | | | | | | |
| FREQUENCY COUNTER | Deviation | DC to Max Frequency | | | | | | |
| | Sweep Time | 1ms~500s | | | | | | |
| STORE/RECALL INTERFACE | Carrier Waveforms | Sine, Square, Triangle | | | | | | |
| | Modulating Waveforms | 50% duty cycle square | | | | | | |
| POWER SOURCE | Internal Rate | 2mHz~20kHz | | | | | | |
| | Frequency Range | 0.1Hz~Max Frequency | | | | | | |
| POWER CONSUMPTION | Waveforms | Sine, Square, Triangle | | | | | | |
| | Type | Linear or Logarithmic | | | | | | |
| DIMENSIONS & WEIGHT | Start/Stop Frequency | 0.1Hz to Max Frequency | | | | | | |
| | Range | 5Hz~150MHz | | | | | | |
| ACCESSORIES | Accuracy | Time Base accuracy±1 count | | | | | | |
| | Time base | ±20ppm (23°C ± 5°C) after 30 minutes warm up | | | | | | |
| OPTIONAL ASSESSORIES | Resolution | The maximum resolution is:100nHz for 1Hz,0.1Hz for 100MHz | | | | | | |
| | Input Impedance | 1MΩ/150pf | | | | | | |
| FREE DOWNLOAD | Sensitivity | ≤35mVrms(5Hz~100MHz) ; ≤45mVrms(100MHz~150MHz) | | | | | | |
| | Groups of Setting Memories | 10 Groups of Setting Memories | | | | | | |
| PC Software Driver | USB(Device) | USB(Device) | | | | | | |
| | AC100 ~ 240V , 50 ~ 60Hz | AC100 ~ 240V , 50 ~ 60Hz | | | | | | |
| GTL-242 | 65 VA | 65 VA | | | | | | |
| | 266(W)×107(H)×293(D) mm ; Approx. 3.2 kg | 266(W)×107(H)×293(D) mm ; Approx. 3.1 kg | | | | | | |

Specifications subject to change without notice. FG-2000GD1DH

ORDERING INFORMATION

AFG-2100 Series Arbitrary Waveform Function Generator
AFG-2000 Series Arbitrary Waveform Function Generator

ACCESSORIES

AFG-2100 Series - GTL-110 × 2, Instruction Manual × 1, Power cord × 1
AFG-2000 Series - GTL-110 × 1, Instruction Manual × 1, Power cord × 1

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