

FEATURES

- User-Friendly
- Easy Results Viewing
- USB Device Interface For Remote Control
- Sine, Square, Ramp, Noise And Arbitrary Waveform Outputs
- Clear Display Of Digital Waveform Parameters

RS PRO AFG21005 Function Generator 5MHz (Sinewave) USB

RS Stock No.: 123-3529



RS Professionally Approved Products bring to you professional quality parts across all product categories. Our product range has been tested by engineers and provides a comparable quality to the leading brands without paying a premium price.

Product Description

RS Pro AFG-21000/AFG-21100 AFGs use direct digital synthesis (DDS) to generate signals at precise frequencies through a unique memory access and clocking mechanism. They offer an accurate and affordable signal source covering the output of Sine, Square (Pulse), Ramp (Triangle), Noise and Arbitrary waveforms. The 20MSa/s sampling rate, 10bit vertical resolution and 4Kpts memory of the AFG-21000/AFG-21100 Series provide users with a flexible environment in which specific waveform output can be created as required. The application range of these user-friendly instruments is greatly extended by their 0.1Hz resolution of Sine, Square and Triangle waveforms and the 1% ~ 99% adjustable duty cycle of the Square (Pulse) waveform. The individual AFG-2000/AFG-2100 models are differentiated by frequency band and the AFG-2100 models have the additional features of AM/FM/FSK Modulation, Sweep and Frequency Counter.

General Specifications

Model Number	AFG21005
Waveform Types	Sine, Square, Ramp, Noise, Arbitrary Waveform
Number of Channels	2
Display Type	LCD
Frequency Range (Square, Pulse and Arbitrary Waveform)	0.1Hz.to 25MHz
Time Base Accuracy	±1 count
Input Impedance	1kΩ/1pf
Output Impedance	50Ω nominal
Internal Linear and Log Sweep	Yes
FM Modulation	Yes
Internal and External Amplitude Modulation	Yes
STORE/RECALL	10 Groups of Setting Memories
Interface Type	USB
Applications	Generally use in areas like: Education sector, Basic industrial

Arbitrary Function

Sample Rate	20MSa/s
Repetition Rate	10MHz
Waveform Length	4k point
Amplitude Resolution	10 bit

Frequency Characteristics

Signal Type	Range	Resolution	Accuracy
Sine	0.1Hz - 5MHz	0.1Hz	±20ppm
Square	0.1Hz - 5MHz	0.1Hz	±20ppm
Ramp (Triangular)	0.1Hz - 1MHz	0.1Hz	±20ppm

Output Characteristics

Amplitude	Range	1mVpp to 10Vpp(into 50), 0.1Hz~20MHz; 2mVpp~20Vpp(open-circuit), 0.1Hz to 20MHz
	Accuracy	±2% of setting ±1mVpp;(at 1kHz,>10mVpp)
	Resolution	0.1mV or 3digits
	Flatness	±1%(0.1dB) 100kHz; ±3%(0.3dB) 5MHz; ±4%(0.4dB) 12MHz; ±20%(2dB) 20MHz; ±5%(0.4dB) 25MHz
	Units	Vpp, Vrms, dBm
Offset	Range	±5Vpk ac+dc(into 50); ±10Vpk ac+dc(open circuit); ±2.5Vpk ac+dc(into 50) for Ω 20MHz~25MHz; ±5Vpk ac+dc(open circuit) for 20MHz~25MHz
	Accuracy	2% of setting + 5mV+ 0.5% of amplitude
Waveform Output	Impedance	50Ω typical (fixed); >300k (output disabled)
	Protection	Short-circuit protected ; Overload relay automatically disables main output
Sync Output	Level	TTL-compatible into >1kΩ
	Impedance	50Ω nominal
	Rise or Fall Time	≤ 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

Square Wave Characteristics

Rise/Fall Time	≤ 25ns at maximum output (into 50 load)
Overshoot	< 5%
Asymmetry	1% of period+1 ns
Variable Duty Cycle	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% to 100% (0.1% Resolution)

Modulation Characteristics

Parameters	AM	FM
Carrier Waveforms	Sine, Square, Triangle	Sine, Square, Triangle
Modulating Waveforms	Sine, Square, Triangle	Sine, Square, Triangle
Modulating Frequency	2 mHz~20 kHz (Int); DC~20KHz (Ext)	2 mHz~20 kHz (Int); DC~20KHz (Ext)
Depth	0% to 120.0%	-
Deviation	-	DC to Max Frequency
Source	Internal/External	Internal/External

Sweep Characteristics

Waveforms	Sine, Square, Triangle
Type	Linear or Logarithmic
Start/Stop Frequency	0.1Hz to Max Frequency
Sweep Time	1ms to 500s
Source	Internal / External

FSK Characteristics

Carrier Waveforms	Sine, Square, Triangle
Modulating Waveforms	50% duty cycle square
Internal Rate	2mHz to 20kHz
Modulation Rate	2mHz to 100kHz (INT); DC to 100kHz (Ext)
Frequency Range	0.1Hz to Maximum Frequency
Source	Internal / External

Frequency Counter

Range	5Hz to 150MHz
Accuracy	Time Base accuracy ± 1 count
Time base	± 20 ppm (23 ± 5) after 30minutes warm up
Resolution	100nHz for 1Hz, 0.1Hz for 100MHz
Input Impedance	1K /1pf
Sensitivity	35mVrms to 30Vms (5Hz~150MHz)

Electrical Specifications

Input Voltage	100VAC to 240VAC
Power Consumption	25VA
Plug Type	UK

Mechanical Specifications

Dimensions	266mm x 293mm x 107mm
Width	293mm
Length	266mm
Height	107mm
Weight	2.5kg

Operation Environment Specifications

Altitude	2000 meters
Relative Humidity	80%
Operating Temperature Range	0~40°C
Storage Temperature Range	-10~70°C

Approvals

Compliance/Certifications	CE
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Arbitrary Function Generator

Stock No. : Model :

123-3529	AFG-21005	124-0226	AFG-21025	123-3532	AFG-21112
123-3530	AFG-21012	123-3531	AFG-21105	123-3533	AFG-21125

