

FEATURES

- Sine, Square, Triangular, Noise and Arbitrary waveforms
- 0.1 Hz resolution of Sine, Square and Triangular waveforms
- 20MSa/s sampling rate, 10 bit vertical resolution and 4 Kpts memory
- 1% - 99% adjustable duty cycle for Square waveform
- Waveform parameter setting through numeric keypad entry and knob selection
- PC arbitrary waveform editing software

RS PRO AFG21125 Function Generator & Counter 25MHz (Sinewave) USB

RS Stock No.: 123-3533



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 20 MSa/s sampling rate, 10 bit vertical resolution and 4 Kpts 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 0.1 Hz 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

Series	AFG-21000 and AFG-21100 Series
Model Number	AFG-21125
Waveform Types	Sine, Square, Ramp, Noise, Arbitrary Waveform
Display Type	LCD
Frequency Range (Square, Pulse and Arbitrary Waveform)	0.1Hz - 5/12/25 MHz
Time Base Accuracy	±20ppm
Input Impedance	1kΩ
Output Impedance	>300 (Output Disabled) kΩ, 50 (Fixed) Ω
Digital Frequency	Yes
Digital Amplitude and Offset	Yes
Internal Linear and Log Sweep	Yes
Variable Sweep	Yes
FM Modulation	Yes
Internal and External Amplitude Modulation	Yes
STORE/RECALL	10 Groups of Setting Memories
Interface Type	USB

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 Ω 20MHz~25MHz; ±5Vpk ac+dc(open circuit) for 20MHz~25MHz
	Accuracy	2% of setting + 5mV+ 0.5% of amplitude
Waveform Output	Impedance	50ohm typical (fixed); >300kohm(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	AC100 240V
Power Consumption	25VA
Plug Type	UK
Safety Category Level	CAT II

Mechanical Specifications

Dimensions	266mm \times 107mm \times 293mm
Width	266mm
Length	293mm
Height	107mm
Weight	Approx. 2.5kg

Operation Environment Specifications

Altitude	2000 meters
Relative Humidity	$\leq 80\%$
Operating Temperature Range	0°C - 70°C
Storage Temperature Range	-10°C - 70°C

Approvals

Compliance/Certifications	CE
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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

