

ATF20D, ATF40D

DDS Function Generator

20MHz, 40MHz



INTRODUCTION

ATFxxD series Function generator uses Direct Digital Synthesis (DDS) technology. Its outstanding performance and system features make it a perfect solution for your testing requirement. The simplified and optimized design of the front panel and dual-language (English/Chinese) TFT display interface make your testing much easier for operation and observation. Additionally, the extendable optional functions can also improve your system characteristics.

FEATURES

- Direct Digital Synthesis(DDS) technology, 2 independent output channels
- 3.5-inch TFT LCD display
- 32 kinds of standard or build-in fixed waveforms
- Minimum stable output waveform: 1mV(50Ω)
- Multiple modulation functions: FM, FSK, ASK, PSK
- Frequency sweep, amplitude sweep, burst and A+B functions
- Count the frequency, period, amplitude RMS value or peak-to-peak value
- Over voltage, over current, short circuit protection, reverse voltage protection.
- Optional configurations: RS232 interface, USB interface, Frequency Counter, Power Amplifier

SPECIFICATIONS

Output A Characteristics

WAVEFORM	Waveform type	sine, square, pulse, DC
	Waveform length	4~16000 points
	Sample rate	180 MSa/s

	Waveform Amplitude Resolution	10 bits
	Sinusoidal Harmonic Rejection	$\geq 50\text{dBc}$ ($\leq 1\text{MHz}$), $\geq 40\text{dBc}$ ($1\text{MHz}\sim 20\text{MHz}$), $\geq 30\text{dBc}$ ($20\text{MHz}\sim 40\text{MHz}$)
	Sine Wave Total Distortion	$\leq 0.5\%$ ($20\text{Hz}\sim 200\text{kHz}$)
	Pulse Wave and Square Wave	rise or fall time: $\leq 20\text{ns}$, overshoot: 5%
	Square Wave Duty Cycle	50%
FREQUENCY	Frequency range	40MHz~the maximum frequency, resolution: 40 mHz 40 μHz ~1kHz, resolution: 40 μHz
	Frequency Accuracy	$\pm(5\times 10^{-5} + 40\text{mHz})$
AMPLITUDE	Amplitude range	2mVpp~20Vpp (high impedance) Resolution: 20mVpp (amplitude > 2V), 2mVpp (amplitude < 2V)
	Amplitude Resolution	20mVpp (amplitude > 2V), 2mVpp (amplitude < 2V)
	Amplitude Accuracy	$\pm(1\%+2\text{ mVrms})$ (high impedance, RMS, frequency 1 kHz)
	Amplitude Flatness	$\pm 5\%$ (frequency<1MHz), $\pm 10\%$ (frequency between 1MHz~10MHz) $\pm 20\%$ (frequency between 10 MHz~60MHz)
	Amplitude stability	$\pm 0.5\%/ 3\text{ hours}$
	Output impedance	50 Ω
	Sine Wave Amplitude Setting Range (50Ω)	1mVpp~10Vpp, when output frequency $\leq 10\text{MHz}$ 1mVpp~5Vpp, when output frequency $\leq 40\text{MHz}$ 1mVpp~2Vpp, when output frequency $\geq 40\text{MHz}$
	Amplitude Setting Range (high impedance)	2mVpp~20Vpp, when output frequency $\leq 10\text{MHz}$ 2mVpp~10Vpp, when output frequency $\leq 40\text{MHz}$ 2mVpp~4Vpp, when output frequency $\geq 40\text{MHz}$
OFFSET	Offset Range	$\pm 10\text{ V}$ (high impedance)
	Offset Resolution	20mV
	Offset accuracy	$\pm(1\%+ 20\text{mV})$
SWEEP	Sweep Type	Linear sweep or frequency or amplitude
	Sweep range	free to set the start and stop points
	Sweep step	larger than any figure of the resolution
	Sweep rate	10ms~60s/step
	Sweep mode	Up, Down, Up-Down,
	Manual Sweep	Step/time
FM	Modulation signal	Internal or external waveforms
	FM Deviation	0%~20%
AM	Modulation signal	Internal or external waveforms

	AM Depth	0% ~ 120%
SHIFT KEYING	FSK	Free to set the hop frequency and the carrier frequency
	ASK	Free to set the hop amplitude and the carrier amplitude
	PSK	Hop Phase: 0 ~ 360°, Max. resolution: 11.25°
	Alternate rate	10ms ~ 60s

Output B Characteristics

WAVEFORM	Waveform type	32 kinds of waveforms, like sine, square, triangle, sawtooth, ladder etc
	Waveform length	1024 points
	Sample rate	12.5 MSa / s
	Amplitude resolution	8 bits
FREQUENCY	Frequency range	40mHz ~ 1MHz(sine) 10mHz ~100kHz (other waveforms)
	Frequency Resolution	10mHz
	Frequency Accuracy	$\pm (1 \times 10^{-5} + 10\text{mHz})$
AMPLITUDE	Amplitude range	50mVpp ~ 20Vpp (high impedance)
	Amplitude Resolution	20mVpp
	Output impedance	50Ω
HARMONIC	Channel B frequency is the harmonic wave of channel A.	
	Harmonic Time	0.1 ~ 250.0 times
	Harmonic Frequency	<1MHz
	Phase Adjustment	coarse adjustment: 11.25 degree/step, fine adjustment: 2 degree/step
BURST	Channel B signal is used as burst signal	
	Frequency of Channel B	40mHz ~ 1MHz
	Burst Frequency	30mHz ~ 50kHz
	Burst count	1 ~ 65000 cycles
	Burst mode	continuous burst and single burst

TTL Output Characteristics

TTL	Waveform	square wave, rise or fall time $\leq 20\text{ns}$
	Frequency	same as the output A
	Amplitude	TTL, CMOS compatible, low: <0.3V, high: >4V

GENERAL CHARACTERISTICS

Power Supply	AC220V (1±10%) AC110V (1±10%) (Pay attention to the voltage selection on rear panel)
Frequency	50Hz (1±5%)
Power Consumption	< 45VA
Operating Temperature	0°C to +40°C
Operating Humidity	<80%
Operation Characteristics	Key operation for all functions, menu display, rotary dial adjustment
Dimensions	415mm x 295mm x 195mm
Display	TFT display, 320*240
Weight	3.5kg

ACCESSORIES INCLUDED

Standard

• ATFxxD Series DDS Function Generator	1 unit
• Power cord	1 pc
• Q9 testing cable	1 Pc
• Q9 BNC-clip test lead	1 pc
• User's Guide	1 pc
• RS232 cable (optional)	1 pc

Optional Parts

- RS232 interface
- USB universal serial bus interface
- Power amplifier
- Frequency counter

Ordering Information

ATF20D : 40μHz~20MHz

ATF40D : 40μHz~40MHz

Reflecting Atten's commitment to high quality standards in product, design, development, production, installation, and service, our manufacturing and distribution facility has received the ISO 9001 certification. We pursue a policy of continuous development and product improvement. Thus the specifications and picture in this Spec sheet may be changed to make product improvements at any time and without notice and is not responsible for typographical errors.

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