

ATF40D

DDS Function Generator

40MHz



INTRODUCTION

ATF40D 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.

ATF40D

40uHz~40MHz

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 and burst functions
- Count the frequency, period, amplitude RMS value or peak-to-peak value
- Over-voltage, over-current, output short-circuit and reverse voltage protections
- Optional configurations: RS232 interface, Frequency Counter, Power Amplifier

SPECIFICATIONS

Output A Characteristics

WAVEFORM	Waveform type	sine, square, pulse, DC
	Waveform length	4~16000 points
	WAVEFORM	WAVEFORM
	Sample rate	180 MSa/s
	Waveform Amplitude Resolution	10 bits
	Sinusoidal Harmonic Rejection	$\geq 50\text{dBc}$ ($\leq 1\text{MHz}$), $\geq 40\text{dBc}$ (1MHz~20MHz), $\geq 30\text{dBc}$ (20MHz~40MHz)
	Sine Wave Total Distortion	$\leq 0.5\%$ (20Hz~200kHz)
	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 μ Hz~1kHz, resolution: 40 μ Hz
	Frequency Accuracy	$\pm(5 \times 10^{-5} + 40\text{mHz})$
AMPLITUDE	Amplitude range	2mVpp~20Vpp (high impedance) Resolution: 20mVpp (amplitude > 2V), 2 μ Vpp (amplitude < 2V)
	Amplitude Resolution	20mVpp (amplitude > 2V), 2 μ Vpp (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 hours
	Output impedance	50 Ω
	Sine Wave Amplitude Setting Range(50 Ω)	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	20mVdc
	Offset accuracy	$\pm(1\% + 20\text{mVdc})$

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, Single
	Manual Sweep	Step/time
FM	Modulating signal	Internal or external waveforms
	FM depth	0% ~ 20%
AM	Modulating signal	Internal or external waveforms
	AM depth	0% ~ 120%
SHIFT KEYING	FSK	free to set the carrier and hop frequency
	ASK	free to set the carrier and hop amplitude
	PSK	Hop Phase: 0 ~ 360°, Max. resolution: 11.25°
	Alternate rate	10ms ~ 60s

Output B Characteristics

WAVEFORM	Waveform type	32 kinds, such as sine, square, triangle, pulse 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 burstsignal	
	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	rise/fall time \leq 20ns (square)
	Frequency	40mHz ~ 1MHz
	Amplitude	TTL,CMOS compatible, low level <0.3V,high level >4V

GENERAL CHARACTERISTICS	
Power Supply	AC220V (1 \pm 10%) AC110V (1 \pm 10%) (Pay attention to the voltage selection on rear panel)
Frequency	50Hz (1 \pm 5%)
Power Consumption	< 45VA
Operating Temperature	0 $^{\circ}$ C to +40 $^{\circ}$ C
Operating Humidity	80% R.H
Operation Characteristics	Keypad operation and rotary knob operation
Dimensions	415mm x 295mm x 195mm
Display	TFT display, 320*240
Weight	3.5kg

ACCESSORIES INCLUDED

Standard

- ATF40D 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