

DDS Function Generator

DFG-9005 : 5MHz
DFG-9010 : 10MHz
DFG-9020 : 20MHz



■ Features

- Advanced Direct Digital Synthesis(DDS) technique, output in two independent channels
- ● Digital and indicator light display
- Crystal oscillation reference, high frequency accuracy and high resolution
- Keyboard operation, sequence adjusting with knob
- 100MHz frequency counter and power amplifier(optional)
- Dimensions and weight : 254×103×325(mm3);3kg

■ Technical Specification

Output characteristics of channel A

Waveform characteristics :

Waveform types : 16 types including sine, square, triangle, ramp and so on

Waveform length : 1024 points Sampling rate : 100 MSa/s

Amplitude resolution : 8 bits

Harmonic distortion : $\geq 40\text{dBc}$ ($< 1\text{MHz}$) , $\geq 35\text{dBc}$ ($1\text{MHz} \sim 10\text{MHz}$)
 $\geq 30\text{dBc}$ ($20\text{MHz} \sim 40\text{MHz}$)

Total distortion : $\leq 1\%$ ($20\text{Hz} \sim 200\text{kHz}$, $\geq 200\text{mVrms}$)

Pulse, square : rise/fall time : $\leq 35\text{ns}$ over pulse : $\leq 10\%$

Duty cycle : $1\% \sim 99\%$

Frequency characteristics :

Frequency range : sine : $20\text{mHz} \sim$ upper limitation corresponding to the model;
others: $20\text{mHz} \sim 1\text{MHz}$

Resolution : 20mHz

Frequency accuracy : $\pm(5 \times 10^{-5} + 20\text{mHz})$

Frequency stability: $\pm 5 \times 10^{-6} / 3\text{hrs}$

Amplitude characteristics :

Amplitude range : $2\text{mVpp} \sim 20\text{Vpp}$ (High impedance, for frequency $\leq 10\text{MHz}$)

$2\text{mVpp} \sim 10\text{Vpp}$ (High impedance, for frequency $> 10\text{MHz} \leq 15\text{MHz}$)

$2\text{mVpp} \sim 8\text{Vpp}$ (High impedance, for frequency $> 15\text{MHz}$)

Resolution : 20mVpp (for amplitude $> 2\text{V}$) , 2mVpp (for amplitude $< 2\text{V}$) ,

Amplitude accuracy : $\pm(1\% + 2\text{mV})$ (high impedance, virtual value, frequency is 1kHz)

Amplitude stability : $\pm 0.5\% / 3\text{hrs}$

Amplitude flatness : $\pm 5\%$ (for frequency $\leq 1\text{MHz}$)

$\pm 10\%$ ($1\text{MHz} <$ for frequency $\leq 10\text{MHz}$)

$\pm 20\%$ ($10\text{MHz} <$ for frequency $\leq 20\text{MHz}$)

Output impedance : 50Ω

Offset characteristics : (for the attenuation of 0dB)

Offset range : $\pm 10\text{V}$ (high impedance) Resolution : 20mV

Offset accuracy : $\pm(1\% + 20\text{mV})$

Sweeping characteristics : linear frequency sweeping

Sweeping range : the start/end point can be set arbitrarily

Sweeping step : any value greater than the resolution

Sweeping rate : $10\text{ms} \sim 60\text{s} / \text{step}$

Sweeping mode : positive, negative, to-and-fro

Frequency modulation characteristics :

Carrier signal: Channel A

Modulation signal : interior signal of channel B or exterior signal

Frequency deviation modulation : $0\% \sim 10\%$

Output characteristics of channel B

Waveform characteristics :

Same as Channel A

Frequency characteristics :

Same as Channel A

Amplitude characteristics :

Same as Channel A

Characteristics of harmonic wave :

 The frequency of channel B is the harmonic of channel A

Harmonic wave : 0.1 ~ 250.0 times Frequency of harmonic wave < 1MHz

Phase difference of two channels : 0 ~ 360°

Resolution : 1°

Output characteristics of SYNC

Waveform characteristics : square, rise/fall times ≤ 20ns

Frequency characteristics : same as the output of channel A

Amplitude characteristics : compatibility of TTL, CMOS,
low level < 0.3V , high level > 4V

General characteristics

Power conditions : voltage : AC220 (1±10%) V ;

frequency : 50 (1±5%) Hz ;

power : < 30VA

Environment conditions : temperature : 0 ~ 40°C ; humidity : < 80%

Operation characteristics : Keyboard operation, continuous adjusting by digit knobs.

Display mode: digit displays the working parameters. indicator light displays the function and option

Package size : 254 mm×103 mm×325 mm **weight :** 3 kg

Characteristics of optional components

Power amplifier:

Maximum output power : 7W (8Ω) , 1W (50Ω)

Maximum output voltage : 22Vpp

Frequency bandwidth : 1Hz ~ 200kHz

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