

Data Sheet

HDG2000B Series

Hantek®

Arbitrary / Function Waveform Generator

HDG2102B HDG2082B HDG2062B HDG2032B
HDG2022B HDG2012B HDG2002B



- 16Bit Vertical Resolution, 250MSa/s Sample Rate
- 100MHz~5MHz Maximum Output Frequency
- 64M Memory Depth
- 16 channels digital output with analog channel
- Support AM, FM, PM, ASK, FSK, PSK and PWM modulations
- TCXO timebase standard, OCXO optional for ultra-high stability
- 7 inch, 64K true color TFT display, WVGA(800X480)
- Plenty of interfaces: USB Host, USB Device, LAN
- Built-in 80M Frequency Counter

Characteristics

Model	HDG2102B	HDG2082B	HDG2062B	HDG2032B	HDG2022B	HDG2012B	HDG2002B
Main Features							
Channel	2	2	2	2	2	2	2
Memory Depth	64M	64M	64M	64M	64M	64M	64M
Frenquency	100MHz	80MHz	60MHz	30MHz	20MHz	10MHz	5MHz
Sample Rate	250MSa/s						
Voltage Resolution	16Bit						
Digital Output	16 Channels output						
Frenquency Characteristic							
Standard Waveforms	Sine, Square, Ramp, Pulse, Noise, Sinc, Exponential Rise, Exponential Fall, ECG, Gauss, Haver Sine, Lorentz, Dual-Tone, DC						
Sine	1uHz~ Max.						
Square	1uHz~30MHz				1uHz~Max.		
Pluse	1uHz~15MHz					1uHz~Max.	
Ramp/Triangle	1uHz~4MHz	1uHz~3MHz					
White Noise	100MHz	80MHz	60MHz	30MHz	20MHz	10MHz	5MHz
Arb. Waveform	1uHz~30MHz	1uHz~25MHz	1uHz~25MHz	1uHz~20MHz	1uHz~20MHz	1uHz~10MHz	1uHz~5MHz
Resolution	1uHz						
Accuracy	±2ppm, 18~28°C						
Signal Characteristics							
Sine Wave Spectrum Purity	Typical(0dBm)						
Harmonic Distortion	DC-1MHz: <-60dBc;						
	1MHz-10MHz: <-55dBc;						
	10MHz-100MHz: <-50dBc						
Total Harmonic Distortion	<0.1% (10Hz-20kHz, 0dBm)						
Spurious signal (non-harmonic)	Typical(0dBm):						
	≤10MHz: <-65dBc;						
	10MHz: <-65dBc+6dB/spectrum phase						
Phase Noise	Typical(0dBm,10kHz offset,)						
	10MHz ≤-115dBc/Hz						
Square							
Rise/Down time	<10ns	<11ns	<12ns	<14ns	<16ns	<18ns	<18ns
Overshoot	Tapical(100KHz, 1Vpp)						
	<3%						
Duty Cycle	≤10MHz: 20.0%~80.0%;			8.0%~92.0%			
	10MHz~40MHz: 40.0%~60.0%;						
	>40MHz: 50.0%						
Non-symmetry	1% of period+5ns						
Jitter(rms)	Typical (1MHz,1Vpp, 50Ω)						
	≤5MHz: 2ppm+500ps;						
	>5MHz: 500ps						
Ramp							
Linearity	≤1%(1KHz, 1Vpp)						
Symmetry	0%~100%						
Pluse							
Period	33.3ns~1Ms	40ns~1Ms	40ns~1Ms	50ns~1Ms	50ns~1Ms	100ns~1Ms	200ns~1Ms
Pulse	≥12ns	≥14ns	≥14ns	≥16ns	≥16ns	≥18ns	≥18ns
Leading Edge Time	≥8ns	≥9ns	≥10ns	≥10ns	≥11ns	≥11ns	≥12ns
Overshoot	Typical (1VPP)						
	<3%						
Jitter(rms)	Typical (1MHz, 1Vpp, 50Ω)						
	≤5MHz 2ppm+500ps						
	>5MHz 500ps						

Arbitrary Waveform Generator ---- HDG2000B Series

Arb. Waveform	
Waveform Length	64M Point
Vertical Resolution	16 Bit
Sample Rate	250MSa/s
Rise/Fall time	Typical(1Vpp) <6ns
Jitter	Typical (1MHz, 1Vpp, 50Ω) ≤5MHz 2ppm+500ps >5MHz 500ps
Amplitude characteristic	
Amplitude Range	≤20MHz:1mVpp - 20Vpp; ≤60MHz:1mVpp -15Vpp; ≤80MHz:1mVpp -10Vpp; ≤90MHz:1mVpp - 5Vpp; ≤100MHz:1mVpp - 2Vpp
Accuracy	Typical (1kHz Sine, 0V deviation, >10mVpp, Auto); ±1% of setting ±2mVpp
Amplitude Flatness	≤10MHz:±0.1dB; ≤60MHz:±0.2dB; ≤100MHz:±0.4dB
Resolution	1mv or 4 digits
Impedance	50Ω
Offset Characteristic	
Range	Voffset < Vmax – Vpp/2
Accuracy	±(1% of setting + 5mV + 0.5% of amplitude)
Modulation Characteristic	
Modulation Type	AM, FM, PM, 2ASK, 2FSK, 2PSK, PWM
AM	
Carrier Waveforms	Sine, Square, Ramp, Arb. (except DC)
Source	Internal/External
Modulating Waveforms	Sine, Square, Ramp, Noise, Arb.
Frequency	1Hz~500KHz
Depth	0%~120%
FM	
Carrier Waveforms	Sine, Square, Ramp, Arb. (except DC)
Source	Internal/External
Modulating Waveforms	Sine, Square, Ramp, Noise, Arb.
Frequency	1Hz~500KHz
Frequency Deviation	0~360
PM	
Carrier Waveforms	Sine, Square, Ramp, Arb. (except DC)
Source	Internal/External
Modulating Waveforms	Sine, Square, Ramp, Noise, Arb.
Frequency	1Hz~500KHz
Frequency Deviation	0%~120%
2ASK	
Carrier Waveforms	Sine, Square, Ramp, Arb. (except DC)
Source	Internal/External
Modulating Waveforms	Square of 50% duty cycle
Code Rate	1Hz~500KHz
2FSK	
Carrier Waveforms	Sine, Square, Ramp, Arb. (except DC)
Source	Internal/External
Modulating Waveforms	Square of 50% duty cycle
Code Rate	1Hz~500KHz

2PSK	
Carrier Waveforms	Sine, Square, Ramp, Arb. (except DC)
Source	Internal/External
Modulating Waveforms	Square of 50% duty cycle
Code Rate	1Hz~500KHz
PWM	
Carrier Waveforms	Sine, Square, Ramp, Arb. (except DC)
Source	Internal/External
Modulating Waveforms	Sine, Square, Ramp, Noise, Arb.
Code Rate	1Hz~500KHz
Width Deviation	0% to 100% of Pulse Width
Burst Characteristic	
Burst Count	1~2000000000
Gated Source	External trigger
Trigger Source	Internal, External or Manual
Sweep Characteristics	
Type	linear
TypeDirection	Up
Sweep time	280 000s
Hold/Return time	280 000s
Trigger Source	Internal, External, Manual
Mark	Falling Edge of Sync signal(programmable)
General Specifications	
Display	
Display Type	7" inch 64K color TFT (diagonal liquid crystal)
Display Resolution	800 horizontal by 640 vertical pixels
Display Contrast	Adjustable (16 gears) with the progress bar
Probe Compensator Output	
Output Voltage (typical)	About 5Vpp into $\geq 1M\Omega$ load
Frequency(typical)	1KHz
Power Supply	
Supply Voltage	100-120VACRMS($\pm 10\%$), 45Hz to 440Hz, CAT II 120-240VACRMS($\pm 10\%$), 45Hz to 66Hz, CAT II
Power Consumption	<30W
Fuse	2A, T rating, 250V
Environmental	
Temperature	Operating: 32 °F to 122 °F (0 °C to 50 °C) ; Nonoperating: -40 °F to 159.8 °F (-40 °C to +71 °C)
Cooling Method	Convection
Humidity	+104 °F or below (+40 °C or below): $\leq 90\%$ relative humidity; 106 °F to 122 °F (+41 °C to 50 °C) : $\leq 60\%$ relative humidity
Altitude	Operating: Below 3,000m (10,000 feet); Notoperaring: Below 15,000m(50,000 feet)
Mechanical	
Size	313mmmm; 108mm; 142mm
Weight	3.5KG(without Packing)

► Standard Accessories

- Power Cord
- Q9 BNC Test Cable
- USB Cable
- User's Guide CD

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