Characteristics

Frequency (DG1022)	
Waveforms	Sine, Square, Ramp, Triangle, Pulse, Noise, Arb
Sine	1μHz ~ 20MHz
Square	1μHz ~ 5MHz
Ramp, Triangle	1μHz ~ 150kHz
Pulse	500μHz ~ 3MHz
Noise	5MHz (-3dB)
Arb	1μHz ~ 5MHz
Resolution	1 μHz
Accuracy	±50 ppm in 90 days ±100 ppm in 1year 18°C ~ 28°C
Temperature index	< 5 ppm/°C

Frequency (DG1012)	
Waveforms	Sine, Square, Ramp, Triangle, Pulse, Noise, Arb
Sine	1μHz ~ 15MHz
Square	1μHz ~ 4MHz
Ramp, Triangle	1μHz ~ 100kHz
Pulse	500μHz ~ 2MHz
Noise	5MHz (-3dB)
Arb	1μHz ~ 4MHz
Resolution	1 μHz
Accuracy	±50 ppm in 90 days ±100 ppm in 1year 18°C ~ 28°C
Temperature index	< 5 ppm/°C

Sine Wave Spectral Purity				
Harmonic Distortion	**CH1**		**CH2**	
	≤1V_{PP}	>1V_{PP}	≤1V_{PP}	>1V_{PP}

DC-1MHz	-55dBc	-45dBc	-55dBc	-45dBc
1MHz-5MHz	-55dBc	-40dBc	-55dBc	-40dBc
5MHz-20MHz	-50dBc	-35dBc	-45dBc	-35dBc
Total Harmonic Distortion	DC to 20 kHz,1Vpp <0.2%			
Spurious (non-harmonic)	DC to 1 MHz < -70 dBc 1 MHz to 10 MHz < -70 dBc + 6 dB/octave			
Phase Noise	10kHz Offset –115 dBc / Hz (Typical)			

Square Wave		
Rise/Fall Time	< 20 ns (10% to 90%), (Typical, 1kHz 1 V_{PP})	
Overshoot	< 5% (Typical, 1kHz 1Vpp)	
Duty Cycle	1μHz to 3MHz	20% to 80%
	3MHz(not contain) to 4MHz	40% to 60%
	4MHz (not contain) to 5MHz	50%
Asymmetry (below 50% Duty Cycle)	1% of period+ 20ns (Typical, 1kHz 1 V_{PP})	
Jitter	6ns + 0.1% of period (Typical, 1kHz 1 V_{PP})	

Ramp Wave	
Linearity	< 0.1% of peak output (typical, 1KHz, 1 V_{PP}, 100% Symmetry)
Symmetry	0% to 100%

Pulse Wave	
Pulse Width	2000s max period; 20ns min period; 1ns resolution
Overshoot	< 5%
Jitter	6ns + 100ppm of period

Arb Wave	**CH1**	**CH2**
Waveform Length	4k points	1k points
Amplitude Accuracy	14 bits (including sign)	10 bits (including sign)
Sample Rate	100MSa/s	100MSa/s

Minimum Rising /Falling Time (Typical)	35ns	35ns
Jitter (RMS) (Typical)	6 ns + 30ppm	6 ns + 30ppm
Non-Volatile Storage (Total:10 Waveforms)	10 waveforms	10 waveforms

Output	**CH1**	**CH2**
Amplitude	2 mV_{PP} ~ 10 V_{PP} (50 Ω) 4 mV_{PP} ~ 20 V_{PP} (High Z)	2 mV_{PP} ~ 3 V_{PP} (50 Ω) 4 mV_{PP} ~6 V_{PP} (High Z)
Amplitude Accuracy (100 kHz Sine)	±(1% of setting + 1mV_{PP})	± (1% of setting+1 mV_{PP})
Amplitude Flatness (Sine wave relative to 100kHz, 5V_{PP})	<100kHz 0.1 dB	<100kHz 0.1 dB
	100kHz ~ 5MHz 0.15 dB	100kHz ~ 5MHz 0.15 dB
	5MHz ~ 20MHz 0.3 dB	5MHz ~ 20MHz 0.3 dB

DC Offset	**CH1**	**CH2**
Range (DC)	5V (50Ω) 10 V (High Z)	1.5V (50Ω) 3 V (High Z)
Accuracy	± (1% of the |Offset Setting| + 1mV)	± (1% of the |Offset Setting| + 1mV)

Waveform Output	**CH1**	**CH2**
Impedance	50 Ω typical	50 Ω typical
Protection	Short-circuit protected[1]	Short-circuit protected[1]

AM (CH1)	
Carrier Waveforms	Sine, Square, Ramp, Arb (Except DC)
Source	Internal/ External
Modulating Waveforms	Sine, Square, UpRamp, DnRamp,Triangle, Noise, Arb (2mHz to 20kHz)
Depth	0% ~ 120%
FM (CH1)	
Carrier Waveforms	Sine, Square, Ramp, Arb (Except DC)
Source	Internal/ External
Modulating Waveforms	Sine, Square, UpRamp, DnRamp,Triangle, Noise, Arb

	(2mHz to 20kHz)
Frequency Deviation	DC~ 5 MHz
PM (CH1)	
Carrier Waveforms	Sine, Square, Ramp, Arb (Except DC)
Source	Internal/ External
Modulating Waveforms	Sine, Square, UpRamp, DnRamp,Triangle, Noise, Arb (2mHz to 20kHz)
Phase Deviation	0 to 360°
FSK (CH1)	
Carrier Waveforms	Sine, Square, Ramp, Arb (Except DC)
Source	Internal/ External
Modulating Waveforms	50% duty cycle square (2mHz to 50kHz)

Sweep (CH1)	
Carrier Waveforms	Sine, Square, Ramp, Arb (Except DC)
Type	Linear or Logarithmic
Direction	Up or Down
Sweep Time	1 ms to 500 s ± 0.1%
Source	Internal/External/Manual

Burst (CH1)	
Waveforms	Sine, Square, Ramp, Pulse, Noise, Arb (Except DC)
Types	Count (1 to 50,000 periods), infinite, gated
Start Phase	-180° to +180°
Internal Period	1 μs – 500s ± 1%
Gate Source	External Trigger
Trigger Source	Internal/External/Manual

Rear Panel Connector	
External AM Modulation	± 5 V_{PK} = 100% modulation 5kΩ input impedance
External Trigger	TTL-compatible

Trigger Input

Input Level	TTL-compatible
Slope	Rising or falling (selectable)
Pulse Width	> 100 ns
Input Impedance	> 10 kΩ, DC coupled
Linear Sweep	< 500 μs (typical)
Latency Sweep	< 500 ns (typical)

Trigger Output	
Level	TTL-compatible into >1kΩ
Pulse Width	> 400ns typical
Output Impedance	50Ω, typical
Maximum Rate	1 MHz

Sync Output (CH1)	
Level	TTL-compatible into >1kΩ
Pulse Width	> 50ns (typical)
Output Impedance	50Ω (typical)
Maximum Frequency	2 MHz

Counter Specification			
Function	Frequency, period, positive/negative Pulse width, Duty cycle		
Frequency range	Single channel: 100mHz ~ 200MHz		
Frequency resolution	6 digits/second		
Voltage range and sensitivity (not modulated signal)			
Auto mode	1Hz to 200MHz	200 mV_{PP} to 5 V_{PP}	
Manual mode	DC	DC offset range	±1.5 VDC
		100mHz~100MHz	20m VRMS to ±5 Vac+dc
		100MHz~200MHz	40m VRMS to ±5 Vac+dc
	AC	1Hz~100MHz	50m V_{PP} to ±5 V_{PP}
		100MHz~200MHz	100m V_{PP} to ±5 V_{PP}
Pulse width and Duty cycle measure	1Hz to 10MHz (100mV_{PP} ~ 10V_{PP})		
Input adjust	Input impedance	1MΩ	

	Coupling mode	AC、DC
	High frequency restrain	High frequency noise restrain (HFR) on or off
	sensitivity	Low, Medium, High
Trigger mode	The trigger level can adjust manually/ automatically	
	Trigger level range: ±3 V (0.1% to 100%)	
	Resolution: 6 mV	

NOTE:

[1] In normal temperature, short circuit in less than half hour will be tolerable.

General Specifications

Display	
Type	Black and White LCD Screen
Resolution	256 Horizontal x 64 Vertical
Grey Degree	4 Grey Level
Contrast (typical)	150 : 1
Light (typical)	300 nit

Power	
Supply	100-240 VAC_{RMS}, 45~440Hz, CAT II
Consumption	Less than 40W
Fuse	2A, T Level , 250V

Environment	
Temperature Range	Operation: 10℃~+40℃
	Non-operation: -20℃~+60℃
Cooling	Natural cooling
Humidity Range	Below +35℃: ≤90％ relative humidity
	+35℃~+40℃: ≤60％relative humidity
Height Range	Operation : below 3,000m
	Non-operation: below 15,000m

Instrument Specifications		
Dimension	Width	232mm
	Height	108mm
	Depth	288mm
Weight	Package excluded	2.65kg
	Package Included	4kg

IP Protection
IP2X

Calibration Interval
One year suggested