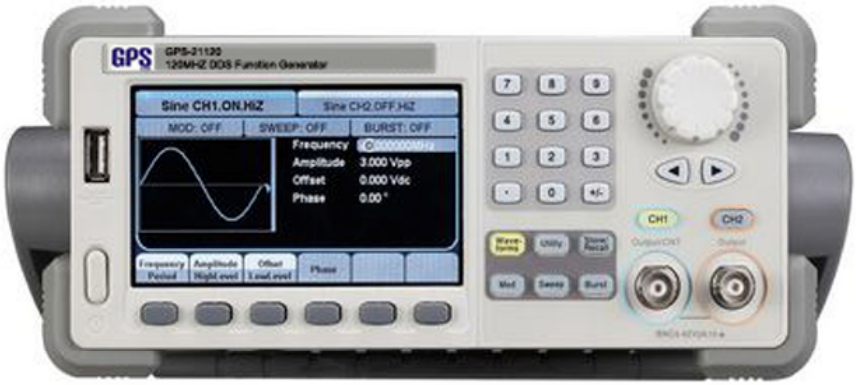
GPS LTD.

DDS Function/Arbitrary Waveform Generator

GPS-2180 80MHz 500Ms/sec
GPS-21120 120MHz 500Ms/sec
GPS-21160 160 MHz 500Ms/sec



Features and Benefits:

- DDS technology, dual channel output, 500MSa/s sample rate, 14bit vertical resolution.
- The 2ppm high-frequency stability, -116dBc/Hz low phase noise(SSB) signal output.
- 512k waveform length; output complicated signals; display user defined signals more accurately.
- Adopts unique EasyPulse technology, can output the pulse signal which is low jitter and very small duty cycle,the edge and pulse width can adjust a wide rang.
- Complete set of modulation functions: AM, DSB-AM, FM, PM, FSK, ASK, PWM, linear/logarithmic sweep and burst.
- Built-in accurate frequency counter enables to measure ranges 100mHz-200MHz (single channel).
- Standard interfaces:USB Device,USB Host,Optional interface:GPIB and LAN interface.
- TFT graphics with a large screen, high resolution and high brightness.
- Supplied with powerful arbitrary editing software, remote control support.

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14 Regents St. London NW10 5LG, UK Tel: 0044 20 8964 3600 Email: sales@gpslimited.com www.gpslimited.com

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Signal fidelity

GPS-21XXX series Function/Arbitrary Wavefom Generator has a high stability time base and 512 kpts arbitrary waveforms storage length can output more complicated and more accurate arbitrary, User can get a higher fidelity signal with the Function Wavefom Generator.

Edit arbitrary waveform

Enables editing of 14-bit 512kpts arbitrary output waveforms. Arbitrary editing software EasyWave provides 9 standard waveforms: Sine, Square, Ramp, Pulse, ExRise, ExpFall,Sinc, Noise and DC,which meets all engineers' basic needs;
In addition, it provides plenty of ways of manual drawing, point-to-point line drawing and arbitrary point drawing. It facilitates to create complex waveforms; multi-file screen management helps users to edit multiple-waveform simultaneously. It provides 10 Storage spaces in non-volatile RAM. You can edit and store more waveforms by EasyWave software.

outstanding performance

GPS-21XXX series Function/Arbitrary Waveform Generator is a new family member of GPS with friendly design: 4.3 inch TFT-LCD display, built-in Chinese/English language, online help function; support USB and internal storage, facilitate files management; special connection terminal for grounding.

Specification:

Model	GPS-21160	GPS-21120	GPS-2180
Max. output frequency	160MHz	120MHz	80MHz
Output channels	2		
Sample rate	500 MSa/s		
Arbitrary waveform length	CH1:16 kpts CH2:512 kpts		
Frequency resolution	11μHz		
vertical resolution	14 bit		
Waveform	Sine, Square, Ramp, Pulse, Gaussian Noise, DC, Built-in arbitrary waveforms		
Modulation	AM, DSB-AM, FM, PM, FSK , ASK ,PWM , Sweep.. Burst		
Frequency counter	Frequency range:1OOmHz-200MHz		
Standard interface	USB Host & Device		
Optional interfaces	GPIB(IEEE-488)，LAN		
Dimension	261mmx105mmx344mm (WXHXD)		

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DDS Function/Arbitrary Waveform Generator

Frequency Specification:

Model	GPS-21160	GPS-21120	GPS-2180
Waveform	Sine,Square,Ramp,Triangle,Pulse, Noise, Arb		
Sine	1μHz-160MHz	1μHz-120MHz	1μHz－80MHz
Square	1μHZ-50MHz	1μHz-40MHz	1μHZ-30MHz
Pulse	1 μHz －40MHz	1μHz-30MHz	1μHz-20MHz
Ramp/Triangular	1μ Hz-4MHz	1 μHz-3MHz	1μHz-2MHz
Gaussianwhitenoise	100MHz (-3dB)	100MHz (-3dB)	100MHz (-3dB)
Arbitrary	1μHZ-40MHz	1μHz-30MHz	11JHZ-20MHz
Resolution	1 μHz		
Temperature coefficient	1 year, 0 ° C - 55°C, ±2ppm		

Sine Spectrum purity:

Harmonic Distortion	DC-1 MHz	<-54 dBc
	1 MHz - 10 MHz	<-46dBc
	10 MHz - 100 MHz	<-36dBc
	100 MHz - 160 MHz	<-30 dBc
Totalharmonic waveform distortion	DC~20kHz,1Vpp<0.2%	
Spurious signal (non-harmonic)	DC~1MHz<-70dBc 1MHz~10MHz<-70dBc+6dB/spectrum phase	
Phase noise	100kHz Offset,–116dBc/Hz(typical value)	

Square Specification:

Rise/fall time(10% ~ 90%)过冲		< 8ns
Overshoot		< 3% (typical,1kHz,1Vpp)
Duty Cycle	1 μHz ~ 10 MHz	20% ~ 80%
	10 MHz(exclude)~ 40MHz	40% ~ 60%
	40 MHz(exclude)~ 50MHz	50%
Asymmetric(50% Duty Cycle)		1% of period+5ns(typical,1kHz,1Vpp)
Jitter(cycle-to-cycle)		100ps(typical,rms)

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Ramp/triangle specification:

Linearity	<0.1% of Peak valu output (typical,1kHz,1Vpp,100% symmetric)
Symmetry	0%~100%

Pulse Specification:

Periods	1000000s,Max. 25ns, Min.
Pulse width	≥12ns
duty	0.0001% to 99.9999%
Rise/Fall time (10% ~ 90%)	6ns~6s,100ps resolution
Overshoot	< 3%
Jitter(cycle to cycle)	<100ps(typical,rms)

Arbitrary Specification:

Output	CH1	CH2
Waveform length	16k points	512k points
Vertical resolution	14 bit	14 bit
Sample rate	500 MSa/s	500 MSa/s
Min. Rise/Fall time	10ns(typical)	10 ns(typical)
Jitter(cycle to cycle)	2 ns(max)	2 ns(max)

Output Specification:

Output	CH1	CH2
Amplitude (into 50Ω)	1 mVpp ~ 10 Vpp（≤40MHz）	1 mVpp ~ 10 Vpp（≤40MHz）
	1 mVpp ~ 5 Vpp （40MHz~100MHz）	1 mVpp ~ 5 Vpp （40MHz~100MHz）
	1 mVpp ~ 2.5Vpp（100MHz~130MHz）	1 mVpp ~ 2.5Vpp（100MHz~130MHz）
	1 mVpp ~ 1.5Vpp（130MHz~160MHz）	1 mVpp ~ 1.5Vpp（130MHz~160MHz）
Vertical accuracy (100 kHz sine)	±(1%+1mVpp of setting value)	±(1%+1mVpp of setting value)
Amplitude flatness(compare to100 kHz sine,1Vpp)	≤10MHz ±0.1 dB	≤10MHz ±0.1 dB
	≤60MHz ±0.2 dB	≤60MHz ±0.2 dB
	≤100MHz ±0.4 dB	≤100MHz ±0.4 dB
	≤160MHz ±0.8 dB	≤160MHz ±0.8 dB
Cross talk	<-80dB	
Channel Delay	<1ns	

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DC Offset Specification:

Output	CH1	CH2
Range(DC)	±5V(50Ω)	±5V(50Ω)
	±10V(high impedance)	±10V(high impedance)
Offset accuracy	±(|setting offset value|*1%+1mV)	±(|setting offset value|*1%+1mV)

Waveform Output:

Impedance	50Ω(typical)	50Ω(typical)
Protection	short-circuit protection	short-circuit protection
Isolation	Connector shells for channel output(s),Sync,and Mod In are connected together but isolated from	
	the instrument's chassis,Maximum allowable voltage on isolated connector shells is ±42Vpk.	

AM/DSB-AM modulation (CH1/CH2):

Carrier	Sine, Square, Ramp, Arbitrary(except DC)
Source	Internal/External
Modulation waveform	Sine, Square, Ramp, Noise, Arbitrary
Modulation depth	0%~120%
Modulation Frequency	1mHz~50kHz

FM Modulation (CH1/CH2):

Carrier	Sine, Square, Ramp, Arbitrary(except DC)
Source	Internal/External
Modulation waveform	Sine, Square, Ramp, Noise, Arbitrary
Modulation Frequency	1mHz~50kHz

PM Modulation (CH1/CH2):

Carrier	Sine, Square, Ramp, Arbitrary(except DC)
Source	Internal/External
Modulation waveform	Sine, Square, Ramp, Noise, Arbitrary
Phase Deviation	0~360° ,0.1°Resolution
Modulation Frequency	1mHz~50kHz

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FSK Modulation (CH1/CH2):

Carrier	Sine, Square, Ramp, Arbitrary(except DC)
Source	Internal/External
Modulation waveform	50% duty-cycle square waveform
Modulation Frequency	1mHz~1MHz

ASK Modulation (CH1/CH2):

Carrier	Sine, Square, Ramp, Arbitrary(except DC)
Source	Internal/External
Modulation waveform	50% duty-cycle square waveform
Modulation Frequency	1mHz~1MHz

PWM modulation (CH1/CH2):

Carrier	Pulse
Source	Internal/External
Modulation waveform	Sine, Square, Ramp, Arbitrary(except DC)
Modulation Frequency	1mHz~50kHz

Sweep (CH1/CH2):

Carrier	Sine, Square, Ramp, Arbitrary(except DC)
Type	linear/logarithmic
Direct	Up/down
Sweep time	1 ms ~ 500 s ± 0.1%
Trigger source	Manual, external, internal

External Modulation:

Connector	Rear-panel BNC,isolated from chassis
Voltage level	±4.5Vpk= 100% modulation >5kΩ input impedance
Note: The external input voltage can't be over ±5Vpk, otherwise instrument gets damaged.	

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Burst (CH1/CH2):

Waveform	Sine, Square, Ramp, Pulse, Arbitrary(except DC)
Carrier Frequency	2mHz~100MHz
Type	Count(1 ~ 1,000,000 periods),infinite, Gated
Start/Stop phrase	0° ~360°
Internal period	1 μs ~ 1000 s ± 1%
Trigger delay	232ns~34s
Gated source	External trigger
Trigger source	Manual, External or Internal

Trigger Input:

Connector	Rear-panel BNC,chassis-referenced
Input Level	TTL compatible
Slope	Up or down (optional)
Pulse width	> 50 ns
Input impedance	>5kΩ,DC coupling
Reaction time	380ns(typical)

Trigger output:

Connector	Rear-panel BNC,chassis-referenced
Voltage level	TTL compatible
Pulse width	> 60 ns(typical)
Output impedance	50Ω(typical)
Max Frequency	1 MHz

Sync Output:

Connector	Rear-panel BNC,isolated from chassis
Voltage level	TTL compatible
Pulse width	> 50 ns(typical)
Output impedance	50Ω(typical)
Max Frequency	2 MHz

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Frequency Counter Specification:

Measurement	Frequency, Period, Positive/negative pulse width, duty cycle	
Frequency range	Single Channel:100mHz~200MHz	
Frequency resolution	6bit/s	
Voltage range (non-modulated signal)		
DC coupling	DC offset range	±1.5VDC
	100mHz~100MHz	50mVrms~±2.5V
	100MHz~200MHz	100mVrms~±2.5V
AC coupling	1Hz~200MHz	100mVrms~5Vpp
Pulse width and duty-cycle measurement	1Hz~10MHz(50mVrms~5Vpp)	
Input adjustment	Input impedance	1MΩ
	Coupling mode	AC,DC
	High-frequency rejection	ON/OFF
Trigger level range	-3V~ 1.8V	

General Specification:

Display	
Display type	4.3inch'TFT-LCD
Resolution	480(RGB)×272
Color depth	24bit
Contrast Ratio	500:1(typical)
Luminance	300cd/m2(typical)
Power	
Voltage	100~240 VACRMS, 45~66Hz,CATII
	100~127 VACRMS, 45~440Hz,CATII
Consumption	<30W
Fuse	1.25A,250V

Standard Accessories	A User Manual
	A Certification
	A Guaranty Card
	An CD(including EasyWave2.0 computer software system)
	A Power Cord that fits the standard of destination country

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