GX1110

MARVIN TEST SOLUTIONS

ARBITRARY WAVEFORM FUNCTION GENERATOR PXI CARD

- Arbitrary Waveform Generator and Direct Digital Synthesis modes
- 100 MS / s sample rate
- 12–bit vertical resolution
- Programmable from 100 mV
- 2 MS memory
- PLL clock generator for AWG mode
- 3U, single slot module

DESCRIPTION

The GX1110 is a high performance, single-channel PXI arbitrary waveform generator that offers function generator and arbitrary waveform generator functionality within one instrument. Built-in waveforms are available for use with both the DDS or AWG modes of operation and include Sine, Triangle, Ramp, Noise, Gaussian pulse and Sinx / x. A flexible sequencer is also available as part of the AWG's architecture, supporting the generation of complex waveforms.

FEATURES

With a sample rate of 100 MS/s, the GX1110 is an ideal modulation source for troubleshooting encoding schemes as well as simulating signal distortion, power line cycle dropouts, video signals, components failures and power supply transients.

The GX1110 Series comes standard with 2 M samples of waveform memory, accessible via a high speed interface.

Triggering

The GX1110 series provides an external trigger input, offering users the ability to control waveform generation via external trigger events. When operating in the AWG mode, waveform trigger modes include continuous, triggered, gated hold, and burst functionality.

Sample Clock

The GX1110 Series utilizes a PLL, providing a programmable sample clock for the AWG mode of operation. The reference clock is provided by an on-board crystal oscillator, or alternately, an external 10 MHz reference can be used. When operating in the DDS mode, an on-board crystal oscillator source provides a 100 MHz clock source for the DDS generator and associated D to A converter.

PROGRAMMING AND SOFTWARE

The board is supplied with the GtWave, a software package that includes a virtual instrument panel, a Windows 32/64-bit DLL driver library and documentation. A trial license for WaveEasy, a software to create, modify and analyze waveform is also included. The The virtual panel can be used to interactively program and control the instrument from a window that displays the instrument's current settings and status. In addition, interface files are provided to support access to programming tools and languages such as ATEasy, LabView, LabView/Real-Time, C/C++, Microsoft Visual Basic®, Delphi, and Pascal. An On-Line help file and PDF User's Guide provides documentation that includes instructions for installing, using and programming the board.

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APPLICATIONS

- Video
- Navigation
- Radar
- Sonar
- Communications
- Converter Testing
- Filter Design & Test
- Computer Peripherals

SPECIFICATIONS

STANDARD WAVEFORMS			
Sine, triangle, square, pulse, ramp up, ramp down, sinc (sine(x) / x), Gaussian pulse, noise			
Maximum Frequency (FS = 100 MHz)	Waveform	DDS Mode	AWG Mode
	Sine	30 MHz	6.25 MHz
	Triangle	1 MHz	6.25 MHz
	Ramp	1 MHz	6.25 MHz
	Pulse		6.25 MHz
	Square	30 MHz	50 MHz
	Noise		1 MHz
	Gaussian pulse		1 MHz
	Sin(x) / x		1 MHz

ARBITRARY WAVEFORM GENERATOR MODE	
Sample Rate	10 mS/s to 100 MS/s
Sample Rate Resolution and Accuracy	4 digits or 0.01 Hz, which ever is lower 0.01% accuracy
Vertical Resolution	12 bits
Waveform Memory	2 M samples

DDS MODE	
Frequency Range, Resolution, and Accuracy	10 µHz to 30 MHz 10 µHz, resolution 50 ppm accuracy (OCXO option available for higher accuracy)
Non-Harmonic Spurious Components	<60 dBc (DC to 1 MHz)
Distortion (2nd Harmonic Relative to Carrier)	<-60 dBc @ < 200 kHz <-35 dBc @ < 2.0 MHz <-20 dBc @ < 20 MHz
Modulation	AM: Int. / Ext. 0 - 100%, DC to 20 kHz FM: Int. / Ext. DC to 20 kHz Phase offset: 0 - 360 degrees, 0.1 degree resolution

MAIN OUTPUT	
Connector	Front panel BNC
Output Mode	On / Off
Output Impedance	50 , ±1%
Protection	Protected against shorts to ground and over-voltage
Amplitude Range	100 mV_{PP} to 8 V_{PP} into 50 ; double into open circuit. 0.1, 0.3, 1, 3, and 8 V_{PP}, FS ranges.
Amplitude Resolution	3 digits
Amplitude Accuracy	±(2% of programmed value + 5 mV) < 1 V ±(1% of programmed value + 10 mV) 1 V
Offset Range	0 to ±5 V, amplitude dependent
Offset Resolution	3 digits
Offset Accuracy	±(1% of programmed value + 20 mV)
Rise Time	<15 ns into a 50 load (10% to 90% full scale step)
Abberations	<5% of p-p amplitude, ±50 mV
Flatness	±.5 dB to 10 MHz, ±1 dB to 30 MHz
Filters	30 MHz, elliptical; DDS mode 30 MHz, bessel; AWG mode

SYNC OUTPUT	
Connector	Front panel BNC output is synchronous with output waveform
Impedance	50 , ±1%
Level	TTL compatible

MARKER OUTPUT	
Positive pulse, user programmable and synchronous with the waveform output.	
Connector	Front panel PS2
Impedance	50 , ±1%
Level	TTL compatible

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TRIGGER MODES	
Continuous	Output continuously generated
Triggered	Output waveform triggered by external or software triggered event. The external trigger signal edge may be a rising or falling edge.
Start / Stop	Output waveform triggered by a trigger signal edge. Waveform is continuously generated until the occurrence of an another trigger edge. The trigger signal may be external or software generated. The external trigger signal edge may be the rising or falling edges.
Gated	Same as Triggered mode except that the waveform is generated for as long as the gate signal stays true (logic one). When the gate signal goes false (logic zero) the output goes quiescent.
Gated Hold	Same as Gated mode except that when the gate signal goes true (logic high) the waveform freezes until the gate signal goes low.
Burst	Output waveform will become active on the occurrence of a trigger edge. The selected waveform is generated for a preset number of cycles between 2 and 1,048,576. Output will then disable.
EXTERNAL TRIGGER INPUT	
Connector	Front panel PS2
Impedance	10 K nominal
Threshold Level	TTL
Repetition Rate	DC to 10 MHz
Minimum Pulse Width	50 ns
Slope	Positive or negative going edge
EXTERNAL INPUT / OUTPUT CLOCK	
Connector	Front panel BNC
Input Impedance	10 K nominal
Threshold Level	TTL
Output Impedance	50
EXTERNAL MODULATION INPUT	
Connector	Front panel PS2
Input Voltage Range	5 V_{PP} for 100% modulation (AM & FM)
Input Impedance	10 K nominal

Bandwidth	DC to 20 kHz
GENERAL	
Power Requirements	15 W (max)
Current Consumption (Maximum)	+5 V @ 1 A +12 V @ 300 mA -12 V @ 300 mA +3.3 V @ 1 A
Weight	Approx. 12 oz
Size	3U, single slot
Operating Temperature	0 °C to +50 °C
Storage Temperature	-20 °C to +70 °C
Humidity (Non-Condensing)	5% to 95%, < 70 °C
Safety	Designed to meet IEC 1010-1, UL 3111-1, and CSA 22.2#1010
CE Labeled	Yes
Calibration Interval	1 year

Note: Specifications are subject to change without notice

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ORDERING INFORMATION

GX1110	Single Channel DDS Function Generator/AWG, 100MS/Sec, 12-bit
SOFTWARE	
WaveEasy	Analog Waveform Development and Analysis Software
ACCESSORY	
GX92012	Cable, BNC Male to BNC Male, 50 Ohm, 2'
GX92015	Cable, BNC Male to BNC Male, 50 Ohm, 5 Feet
GT-BNC50-2	Cable, BNC to BNC, 50 Ohm, 2 ft
GT-BNC50-5	Cable, BNC to BNC, 50 Ohm, 5 ft
GX93005	DIN Mating Connector for GTX22xx / GX2065
GX93006	3 ft Harness for GTX22xx/GX2065 DIN connector (DIN to Header)
CALIBRATION	
GX1110-CAL	GX1110 Calibration/Verification Service. Includes pre-verification data (post calibration data provided if applicable)
GX1110-CAL-3	GX1110 Calibration/Verification Service - 3 Years. Includes pre-verification data (post calibration data provided if applicable)
GX1110-CAL-5	GX1110 Calibration/Verification Service - 5 Years. Includes pre-verification data (post calibration data provided if applicable)
CalEasy-GX1110	CalEasy for the GX1110 (Single User License) with One Year Support and Subscription
CalEasy	CalEasy License for all Supported Marvin Test Solutions Products (Single User License) with One Year Support and Subscription
CalEasy-2Y	CalEasy License for all Supported Marvin Test Solutions Products (Single User License) with Two Year Support and Subscription
CalEasy-3Y	CalEasy License for all Supported Marvin Test Solutions Products (Single User License) with Three Year Support and Subscription

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