

GX1649 SERIES

ANALOG OUTPUT/ARBITRARY WAVEFORM GENERATOR PXI CARD

- 64 channels, each configured as analog output or arbitrary waveform generator
- 16-bit resolution
- Output range: -15 V to +15 V
- 625 KS/s sample rate (64 channel configuration)
- Supports data streaming (GX1649-1 model)
- 8 digital I/O lines



DESCRIPTION

The GX1649 is a 3U PXI digital to analog output board designed specifically for applications where multiple DC or AC analog outputs are required. The GX1649 offers 64 output channels with 16-bits of precision signal sourcing performance and can be used as a DC source or arbitrary waveform generator.

FEATURES

The GX1649 is organized into four groups of sixteen channels, providing up to 64 channels of AWG or DC source capability. For DC operation, each group can be programmed and triggered independently. All groups can be updated simultaneously and each channel within a group can be programmed to a unique voltage. When used as a waveform generator, 256 K of sample memory is allocated to each group of sixteen channels with the user being able to allocate the memory for one or all channels. With all 64 channels configured for AWG mode, the maximum sample rate is 625 KS/s. Each group can be clocked independently via a programmable clock source or all groups can be clocked by a common source. Within any group, channels can be configured for a combination of AWG and DC operation.

For applications that require the continuous data transmission from the PC, the GX1649-1 supports data streaming, which allows continuous transmission of data from the PC to the GX1649's 1 K FIFO memory. Actual data streaming data rate will be dependent on the processor's speed and other processes that may be running concurrently.

The GX1649 also offers 8 digital TTL I/O channels for general purpose applications. These digital I/O channels also can be used as external clock inputs for each of the 4 channel groups.

PROGRAMMING AND SOFTWARE

The board is supplied with the GXAO software package which includes a virtual instrument panel, a Windows 32/64-bit DLL driver library and documentation. The virtual panel can be used to interactively program and control the instrument from a window that displays the instrument's settings and status. In addition, interface files are provided to support programming tools and languages such as ATEasy, LabView, LabView/Real-Time, C/C++, Microsoft Visual Basic®, Delphi, and Pascal. Help file and PDF User's Guide provides documentation that includes instructions for installing, using and programming the board.

A separate software package - [GtLinux](#) - provides support for Linux 32/64 operating systems.

APPLICATIONS

- Discrete avionics testing
- Automatic Test Equipment (ATE)
- System test
- Sensor emulation

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SPECIFICATIONS

OUTPUT CHARACTERISTICS	
Number of Output Channels	64
Programmable Output Voltage Range	±15 V
Output Current per Channel	±5 mA (max)
Resolution	16-bit
Accuracy	± 4 LSB, -14.75V to +14.75 V ± (4 LSB + 2 mV), < - 14.75 V & > + 14.75 V
Slew Rate	3 V/μs
ARBITRARY WAVEFORM GENERATOR	
Memory	256K samples for 16 channels (one bank), memory can be allocated for one or all channels
FIFO Memory (for streaming)	1K per bank
Waveform Sample Rate	625 kHz per channel (all 64 channels active)
Programmable Sample Clock	10 MHz to 0.5 Hz, one per bank Note: Only one channel per bank can be active for the 10 MHz rate
Sample Clock Resolution	10 MHz / 2 ^N , N is 0 to 31
Sample Clock Source	Internal (10 MHz), External (via digital I/O inputs, one per bank) PXI trigger bus PXI Star trigger bus
DIGITAL I/O	
Digital I/O Channels	8, each configurable as input or output. Four of the channels can be used as external inputs for AWG clocks
Memory	8K byte vectors
Logic Levels	TTL
POWER	
3.3 VDC	100 mA (max)
5 VDC	2 A (typ); 6 A (max)
12 VDC	10 mA (max)

ENVIRONMENTAL	
Operating Temperature	0 °C to +55 °C
Storage Temperature	-20 °C to +70 °C
Size	3U PXI
Weight	12 oz
Connector	78-pin D-Type

Note: Specifications are subject to change without notice

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ORDERING INFORMATION

GX1649	Analog Output/Arbitrary Waveform Generator PXI Card
GX1649-1	Analog Output/Arbitrary Waveform Generator PXI Card with Streaming
GX1649-M	Analog Output/Arbitrary Waveform Generator PXI Card (Ruggedized and Conformally Coated)
ACCESSORY	
GT96002	Connector, D-Type 78-Pin Male with Crimp Pins
GT97102	3' Harness, 78-Pin Male Connector on One End, Loose Wired (Numbered) Other End
GT97103	1' Harness, 78-Pin Male Connector on One End, Loose Wired (Numbered) Other End
GT97104	1' Harness, 78-Pin Male Connector on Both Ends
GT96107	3' Harness, 78-Pin Male Connector on Both Ends
GT96078	78-Pin Connector to Screw Terminal Interface
GX96106	6' Harness, 78 Pin Male Connector on Both Ends
GX98302	3U "Wireless" Scout Adapter for GX6138/GX6125/GX6377/GX6384/GX1648 (200-Pin Connector)
CALIBRATION	
GX1649-CAL	GX1649 Calibration/Verification Service. Includes pre-verification data (post calibration data provided if applicable)
GX1649-CAL-3	GX1649 Calibration/Verification Service - 3 Years. Includes pre-verification data (post calibration data provided if applicable)
GX1649-CAL-5	GX1649 Calibration/Verification Service - 5 Years. Includes pre-verification data (post calibration data provided if applicable)
GT96109	GX1649 / GX3348 Calibration Cable Assembly
CalEasy-GX1649	CalEasy for the GX1649 (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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