

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
- PXI hybrid slot compatible



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

GX1649 SERIES



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 |
| CALIBRATION | |
| Calibration Interval | 1 year |

Note: Specifications are subject to change without notice

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ORDERING INFORMATION

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|-----------------------|--|
| 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 ft Harness, 78-Pin Male Connector on One End, Loose Wired (Numbered) Other End |
| GT97103 | 1 ft Harness, 78-Pin Male Connector on One End, Loose Wired (Numbered) Other End |
| GT97104 | 1 foot Harness, 78-Pin Male Connector on Both Ends |
| GT96107 | 3 Feet Harness, 78-Pin Male Connector on Both Ends |
| GT96078 | 78-Pin Connector to Screw Terminal Interface |
| GX96106 | 6 ft. Harness, 78 Pin Male Connector on Both Ends |
| GX98302 | 3U "Wireless" Scout Adapter for GX6138/GX6125/GX6377/GX6384/GX1648 (200-Pin Connector) |
| GX96105 | 6 ft harness, 78 pin male connector on one end, loose wires (numbered) on other end |
| GT96110 | 5 ft Cable, 78-Pin Male Connector on Both Ends |
| GT97112 | 15' Cable, 78-Pin Male Connector on One End, Loose Wired (Numbered) Other End |
| GT97113 | 15 ft Cable, 78-Pin Female Connector on One End, Loose Wired (Numbered) Other End |
| CALIBRATION | |
| GX1649-CAL | GX1649/GX1649-1/GX1649-M Calibration/Verification Service. Includes pre-verification data (post calibration data provided if applicable) |
| GX1649-CAL-3 | GX1649/GX1649-1/GX1649-M Calibration/Verification Service - 3 Years. Includes pre-verification data (post calibration data provided if applicable) |
| GX1649-CAL-5 | GX1649/GX1649-1/GX1649-M 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 |

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| CalEasy-2Y | CalEasy License for all Supported Marvin Test Solutions Products (Single User License) with Two Year Support and Subscription |
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