

# GX1034



## STANDARDS REFERENCE PXI CARD FOR TEST SYSTEMS

- Voltage, frequency, and resistance standards
- On-board EEPROM ensures standards traceability and accuracy
- Built-in current source and DC measurement resources for system self-test support
- Built-in self test
- PXI hybrid slot compatible



## DESCRIPTION

The GX1034 offers PXI system designers the capability to develop a system re-certification strategy that employs only internal system resources. By incorporating the GX1034 as part of a system configuration, it is possible to develop a system accuracy verification strategy that can recertify a system's source and measure baseband instrumentation – resulting in simplified support / maintenance logistics and improved system availability.

The GX1034's standards exhibit excellent long term stability with absolute accuracy achieved by employing an on-board EEPROM, which contains NIST traceable calibration values for source and resistor standards. The module also includes source and measure resources which can be used to support system self-test functions including continuity verification and verification of instrument functionality.

## FEATURES

The GX1034 provides a DC voltage source reference, an AC voltage source reference, 8 low drift resistor references, and a precision 10 MHz frequency reference. The DC and AC sources supply up to  $\pm 9$  V and include a 3 decade resistive divider network for attenuation of the output level. The resistor references include four-wire 1, 10 and 100 resistors and two-wire 1 K, 10 K, 100 K, 1 M and 10 M resistor values.

The 10 MHz frequency reference employs a high stability, oven controlled crystal oscillator which can also provide lower frequencies via a 24-bit divider.

Both the 10 MHz output and the divider output can drive 50 loads. In addition, when the module is installed in slot 2 of a PXI chassis, it can be the PXI 10 MHz backplane clock source.

Additional features include a 0 - 20 mA current source; a 16-bit A to D for measuring voltages up to  $\pm 10$  V, and on-board monitoring of the card's ambient operating temperature. The card also includes a signal multiplexer which provides the ability to connect two and four wire resources to the card's output connector. All voltage resources, resistor standards, clock divider outputs, and A to D inputs are isolated and floating from the PXI bus, ensuring a low noise environment and minimizing the possibility of ground loops which can affect overall accuracy and performance.

## PROGRAMMING AND SOFTWARE

The board is supplied with a 32-bit DLL driver. Various interface files provide access to the DLL from programming tools and languages such as ATEasy, LabVIEW, C/C++, Microsoft Visual Basic®, Delphi, and more. The available virtual panel can be used to interactively adjust and control the instrument from a window that displays the current instrument settings and measurements. An On-Line help file and PDF User's Guide provides documentation that includes instructions for installing, using and programming the board.

## APPLICATIONS

- In-system instrument recertification
- System accuracy verification procedures
- System self-test procedures

For more information about how the GX1034 can be used as part of a system re-certification strategy, refer to the white paper: [KB Q200153](#) - Instrument Certification as part of a Modular Test platform Architecture.



# GX1034



## SPECIFICATIONS

GENERAL	
Source / Measure Channels	Meas Hi, Meas Lo Sense Hi, Sense Lo
Source / Measure Connector	DB-9, female
10 MHz Reference Connector	BNC front panel and PXI backplane connector
Format	PXI, 3U single slot, compatible with PXI Express hybrid slots
DC VOLTAGE SOURCE STANDARD	
Output Voltage	±9.0, ±0.9, ±0.09, ±0.009 V
Accuracy	±9.0 V: ±0.005% ±0.9 V: ±0.005% ±0.09 V: ±0.016% ±0.009 V: ±0.1%
Temperature Coefficient	0.6 ppm / °C
Long Term Drift	6 ppm for 1000 hours
Output Divider	Resistive series network (Ohms): 10 k, 1 k, 100, 10
AC VOLTAGE SOURCE STANDARD	
Output Voltage	3.5, 0.35, 0.035, 0.0035 VAC, nominal All voltages support the following frequencies: 50 Hz, 60 Hz, 100 Hz, 400 Hz, 1 kHz, 10 kHz, 100 kHz
Accuracy 50 Hz, 60 Hz, 100 Hz	3.5 VAC: ±0.6% 0.35 VAC: ±0.6% 0.035 VAC: ±0.6% 0.0035 VAC: ±4%
Accuracy 400 Hz, 1 kHz	3.5 VAC: ±0.6% 0.35 VAC: ±0.6% 0.035 VAC: ±0.6% 0.0035 VAC: ±4.75%
Accuracy 10 kHz	3.5 VAC: ±0.6% 0.35 VAC: ±0.6% 0.035 VAC: ±0.6% 0.0035 VAC: ±5%
Accuracy 100 kHz	3.5 VAC: ±4% 0.35 VAC: ±4% 0.035 VAC: ±4% 0.0035 VAC: ±9.5%
Temperature Coefficient	3 ppm / °C (voltage reference)
Long Term Drift	6 ppm for 1000 operating hours

Frequency Accuracy	±0.1 ppm
Output Divider	Resistive series network (Ohms): 10 k, 1 k, 100, 10
RESISTOR STANDARDS	
1 Ohm	±0.06%, 3 ppm / °C, 4-wire
10 Ohm	±0.012%, 0.2 ppm / °C, 4-wire
100 Ohm	±0.01%, 0.2 ppm / °C, 4-wire
1 kOhm	±0.004%, 0.2 ppm / °C, 2-wire
10 kOhm	±0.004%, 0.2 ppm / °C, 2-wire
100 kOhm	±0.015%, 5 ppm / °C, 2-wire
1 MOhm	±0.0275%, 3 ppm / °C, 2-wire
10 MOhm	±0.1%, 2 ppm / °C, 2-wire
10 MHz FREQUENCY STANDARD AND DIVIDER	
Output Frequency	10 MHz
Initial Accuracy	±1 ppm
Drift	100 ppb / °C (max)
Output	Front panel BNC: TTL compatible, 50 Ohm load PXI connector: PXI 10 MHz clock
10 MHz Divider Output	24-bit resolution, programmable
DC CURRENT SOURCE	
Range	0 - 19.9 mA 16-bit resolution, programmable
Accuracy	±0.025 mA of programmed value
Compliance	0 V - 12.5 V
DC VOLTAGE MEASUREMENT	
Resolution	16-bit
Mode	Differential
Input Impedance	20 kOhm nominal
Range	-10 V to +10 V
Accuracy	±0.025 V of reading
POWER	
+5 V	1 A (max.)
+12 V	500 mA (max.)
+3.3 V	500 mA (max.)
CONFIGURATION	
Weight	210 g
Size	3U, single slot, hybrid slot compatible

# GX1034



ENVIRONMENTAL	
Operating Temperature	0 °C to +50 °C
Storage Temperature	0 °C to +70 °C
Humidity	10% to 80% (Non-condensing)
Safety	EN61010-1:2001
CE Labeled	Yes EN61000-6-1:2001, EN55011:1998
Calibration Interval	1 year

Note: Specifications are subject to change without notice

## ORDERING INFORMATION

<b>GX1034</b>	Precision Reference Standards PXI Card
<b>GX1034-M</b>	Precision Reference Standards PXI Card (Ruggedized and conformal coated)
ACCESSORY	
<b>GT94102</b>	Mating Connector for GT1034 / GX1034 with 1' Harness
<b>GT94103</b>	Mating Connector for GT1034 / GX1034 with 3' Harness
<b>GT94101</b>	Mating Connector for GT1034 / GX1034 (9-Pin Male)
CALIBRATION	
<b>GX1034-CAL</b>	GX1034 NIST-traceable Calibration/Verification Service. Includes pre-verification data (post calibration data provided if applicable)
<b>GX1034-CAL-3</b>	GX1034 NIST-traceable Calibration/Verification Service - 3 Years. Includes pre-verification data (post calibration data provided if applicable)
<b>GX1034-CAL-5</b>	GX1034 NIST-traceable Calibration/Verification Service - 5 Years. Includes pre-verification data (post calibration data provided if applicable)
<b>GX91808</b>	GXCAL - Calibration Software for GX1034



# GX1034



THIS PAGE INTENTIONALLY LEFT BLANK

