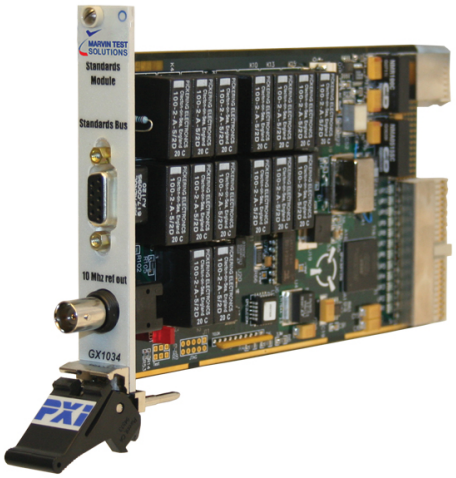
GX1034

STANDARDS REFERENCE FOR TEST SYSTEMS PXI CARD

- 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



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 EEROM, 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 ±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 Ω resistors and two-wire 1 K, 10 K, 100 K, 1 M and 10 MΩ 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 Ω 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 ±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.

STIMULI

GX1034

SPECIFICATIONS

GENERAL	
Source / Measure Channels	Meas Hi, Meas Lo, Sense Hi, Sense Lo
Source / Measure Connector	9 position, D-sub
10 MHz Reference Connector	BNC & PXI backplane connector
Format	PXI, 3U single slot, compatible with PXI Express hybrid slots
DC SOURCE STANDARD	
Output Voltage	±9.0, ±0.9, ±0.09, ±0.009 V, nominal
Initial Accuracy	0.002% (with EEROM calibration value), each output level and polarity calibrated with NIST traceability
Temperature Coefficent	0.6 ppm / °C
Long Term Drift	6 ppm for 1000 hours
Output Divider	Resistive, series network: 10 kΩ, 1 kΩ, 100 Ω, 10 Ω
AC SOURCE STANDARD	
Output Voltage	3.5, 0.35, 0.035, 0.0035 V_{RMS}, nominal
Waveform	Sine
Frequencies	50 Hz, 60 Hz, 100 Hz, 400 Hz, 1 kHz, 10 kHz, 100 kHz Initial accuracy: ±0.1 ppm, 7.5 digits
Initial Output Voltage Accuracy	50 Hz, 60 Hz, 100 Hz, 400 Hz, ±0.08% 1 kHz, 10 kHz, ±0.05% 100 kHz, ±0.4% (with EEROM calibration value) Each level and frequency calibrated with NIST traceability.
Temperature Coefficient	3 ppm / °C (voltage reference)
Long Term Drift	6 ppm for 1000 operating hours
Output Divider	Resistive, series network: 10 kΩ, 1 kΩ, 100 Ω, 10 Ω

RESISTOR STANDARDS	
1 Ohm	±0.005%, 3 ppm / °C , 4 - terminal
10 Ohms	±0.005%, 0.2 ppm / °C , 4 - terminal
100 Ohms	±0.005%, 0.2 ppm / °C , 4 - terminal
1 kOhm	±0.002%, 0.2 ppm / °C , 2 - terminal
10 kOhms	±0.002%, 0.2 ppm / °C , 2 - terminal
100 kOhms	±0.004%, 5 ppm / °C , 2 - terminal
1 MOhm	±0.008%, 3 ppm / °C , 2 - terminal
10 MOhms	±0.03%, 2 ppm / °C , 2 - terminal
10 MHZ STANDARD AND FREQUENCY DIVIDER	
Output Frequency	10 MHz, initial accuracy: ±0.1 ppm Drift: 100 ppb / °C (max)
Output	Front panel BNC: TTL compatible, 50 Ω load DB-9 connector: Isolated, TTL compatible, 50 Ω load PXI connector: PXI 10 MHz clock
Divider	24 bit, accessible via the DB-9 connector TTL compatible, 50 Ω load
DC CURRENT SOURCE	
Output Current	0 - 19.9 mA, 16–bit programmable output, 0 - 12.5 V compliance range
Accuracy	±0.05% of programmed value
DC MEASURE	
Input Range	±10 V, FS
Input Configuration	Differential, input impedance 20 kΩ nominal
Resolution	16 bit
Accuracy	±1% of reading
GENERAL	
Current Consumption (Maximum)	+5 V @ 1 A +12 V @ 500 mA +3.3 V @ 500 mA
Weight	Approx. 210 g
Size	3U, single slot
Operating Temperature	0 °C to +50 °C
Storage Temperature	0 °C to +70 °C
Humidity (Non-Condensing)	10% to 80%
Safety	EN61010-1:2001
CE Labeled	Yes EN61000-6-1:2001, EN55011:1998

Note: Specifications are subject to change without notice

STIMULI

GX1034

ORDERING INFORMATION

GX1034	Precision Reference Card
ACCESSORY	
GT94102	Mating connector for GT1034 / GX1034 with 1' harness
GT94103	Mating connector for GT1034 / GX1034 with 3' harness
GT94101	Mating connector for GT1034 / GX1034 (9 pin male)
GX1034-CAL	GX1034 NIST-traceable Calibration/Verification Service. Includes pre-verification data (post calibration data provided if applicable)
GX1034-CAL-3	GX1034 NIST-traceable Calibration/Verification Service - 3 Years. Includes pre-verification data (post calibration data provided if applicable)
GX1034-CAL-5	GX1034 NIST-traceable Calibration/Verification Service - 5 Years. Includes pre-verification data (post calibration data provided if applicable)
SOFTWARE	
GX91808	Calibration Software for GX1034

GX1034

THIS PAGE INTENTIONALLY LEFT BLANK