PG110

300 MHz Pulse Generator

- 10 Hz to 300 MHz
- Two Output Channels
- Programmable Pulse Widths or Duty Cycles
- 24 V p-p Programmable Amplitude, ±12 V Range
- Programmable Transition Times or Slew Rates
- Programmable Delay
- Double Pulse and Inverted Pulse Modes
- Auto, Triggered, Counted Burst, Timed Counted Burst, Gated, External Width, and Master/Slave Modes
- Internal, External, or VXI TTLTRG Triggers
- Save/Recall Up to 10 Setups to Nonvolatile RAM
- Supports SCPI and IEEE 488.2 Commands

Description

The PG110 is a full performance 300 MHz pulse generator housed in a single VXI C-size enclosure. Rivaling the performance of costlier stand-alone models, the PG110 sets a new standard for VXI based instrumentation. Clean edges and accurate control of frequency, pulse widths, amplitude, offset, and transition times, mean you can perform not only functional tests, but parametric tests at frequencies up to 300 MHz.

The PG110 provides two output channels, trigger input, trigger output and external clock input. Each module may be used in a stand-alone mode or in a Master/Slave configuration. In the Master/Slave mode, PG110 slave modules receive clock and trigger timing from the master module via two interconnect cables, ensuring tight timing specifications across all modules.

Frequency and leading and trailing edge rates are programmable per module. Amplitude, offset, pulse width, polarity, single or double pulse mode and trigger delays are all programmable per channel. The external trigger input, or the selected VXITTLTRG line, may be used as either an edge trigger or a synchronous gate trigger to the PG110. Alternate methods of triggering the PG110 include software commands and an internal timer.

PG110 SPECIFICATIONS*

All timing specifications are measured at 50% amplitude, fastest transition times and output high and low levels at +1.0 V and 0.0 V, respectively. All delay times are measured relative to trigger out.

Common Specifications:

Spec. Clock Reference	VXI 10 MHz clock
Clock Accuracy	± 0.01%
Resolution	12-bits
Repeatability	4 times better than accuracy, typical
RMS Jitter	
Period < 100 ns	0.05% of period + 15 ps
Period > 100 ns	0.025% of period + 15 ps
Overshoot / Undershoot	± (8% of setting + 10 mV)
Settling Time	< 20 ns to 2.0% of level

Pulse Period:

Range:	3.3 ns to 100 ms
Accuracy:	
Period > 500 ns	± 0.02%
Period ≤ 500 ns	± 1.0%

Pulse Width:

Range	1.5 ns to (period - 1.5 ns)
Duty Cycle	1 to 99%
Accuracy	
Width > 500 ns	± 0.02% ± 1 ns
Width ≤ 500 ns	± 1.0% ± 1 ns

Pulse Delay:

Range	0 ns to (period - 1.5 ns)
Accuracy	
Delay > 500 ns	± 0.02% ± 1 ns
Delay ≤ 500 ns	± 1.0% ± 1 ns

Slew Rates:

Range 1	2700 V/µs
Range 2	33 V/µs to 1300 V/µs
Range 3	1 V/µs to < 33 V/µs
Range 4	33 mV/µs to < 1 V/µs
Accuracy	± 20% of setting

Transition Times:

Slew Range 1	650 ps, typical
Slew Range 2	3.3 ns to < 130 ns
Slew Range 3	130 ns to < 1 µs
Slew Range 4	1 µs to 581 µs

Outputs:

Output Channels:

Number	2 single ended
Connector	SMB
Impedance	50 ohms, ± 1 ohm, source terminated
Output Amplitude	
Slew range 1 & 2	0.5 V to 7.0 V
Slew ranges 3 & 4	0.5 V to 24.0 V
Output Offset	
Slew range 1 & 2	-1.75 V to +6.75 V
Slew ranges 3 & 4	-11.75 V to +11.75 V
Output Low Level	
Slew range 1 & 2	-2.0 V to +6.5 V
Slew ranges 3 & 4	-12.0 V to +11.5 V
Output High Level	
Slew range 1 & 2	-1.5 V to +7.0 V
Slew ranges 3 & 4	-11.5 V to +12.0 V
Level Accuracy	± (1% of setting + 1% of amplitude + 40 mV)
Overshoot & Undershoot	± (8% of setting + 10 mV)

Trigger Output:

Connector	SMB
Output Level	100K ECL into 50 ohm load
Width	Width of first pulse of output channel 2
Transition Time	< 1 ns

Input:

Trigger:

Connector	SMB
Slope	Negative
Termination	50 ohms to -2.0 V
Transition	< 50 ns
Minimum Width	3.5 ns
Threshold Range	-5.0 V to +5.0 V, programmable
Threshold Resolution	50 mV

Clock:

Connector	SMB
Range	1 MHz to 20 MHz
Level	100K ECL
Termination	50 ohms to -2.0 V

Functional Modes:

Modes	Auto, Timer, Gate, Burst, External Width, Master/Slave
Double Pulse	Either channel, both or neither
Burst Count Range	1 to 536870944
Auto Timer Range	80 µs to 10 seconds

VXI Specifications

Interface Compatibility:

Size	C-size, single slot
Type	Message-based, servant
Logical Address	Static or dynamic
Interrupt Level	Programmable 1-7
Triggers	TTLTRG 0-7

Power Requirements:

+5.0 volts	3.0 A	15 W
-5.2 volts	4.5 A	23.4 W
+12.0 volts	0.5 A	6 W
-12.0 volts	0.5 A	6 W
-2.0 volts	2.5 A	5 W
+24.0 volts	0.75 A	18 W
-24.0 volts	0.5 A	12 W

Total Power		85.4 W

Cooling Requirements:

Per Slot Average	85 W
Airflow	7L/sec @ 0.3 mm water pressure for 10° C temperature rise

Environmental Specifications:

Temperature	Storage = -40° C to +75° C Operating = 0° C to 45° C
Humidity	5% to 95% relative, noncondensing

Software Drivers:

National Instruments	LabWindows/CVI

* Specifications subject to change without notice.

Interface Technology, Inc. • 300 S. Lemon Creek Dr., • Walnut CA • 91789
Phone: (909)595-6030 • FAX: (909)595-7177 • e-mail: info@interfacetech.com • www.interfacetech.com

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