GP1612H SERIES

PROGRAMMABLE PULSE GENERATOR - HP 8112A COMPATIBLE

- 50 MHz frequency range with 16 V
- Variable width and delay with variable transitions
- IEEE 488.2 and SCPI compatible
- Fully compatible with the Hewlett Packard 8112A Pulse Generator

DESCRIPTION

The GP1612H features variable pulse widths from 10 ns to 10 sec, delays from 0 ns to 10 sec with up to 6 digits resolution and adjustable output levels from −8 V to +8 V, with pulse amplitudes from 0.1 to 16 V_{PP} into 50 Ω load (.2 to 32 V_{PP} into open circuit). The Pulse Generator also features selectable complementary pulse and double pulse, in continuous, triggered, gated and counted burst modes. The GP1612H allows selection of predefined amplitude for critical stimulus and testing of major semiconductor technologies as TTL, CMOS and ECL.

COMPATIBILITY

The GP1612H has been designed to replace the HP8112A Pulse Generator and as such, is compatible with all of the HP 8112A functions and is 100% compatible in its GPIB command set. The GP1612H can replace the obsolete HP8112A in existing test and measurement systems.

Variable Transitions

To make operation flexible, variable transitions (rise and fall times) can be programmed from 5 ns to 100 ms. With the flexible transition times, various shapes of pulses can be obtained for applications where parameters such as linearity, switching times or reflection times must be analyzed. Operational amplifiers slew rate can be measured or thresholds of devices and circuits can be easily tested using programmable rise and fall times.

Fast and Easy Operation

To make operation easy, GP1612H interface with the operator in a straightforward manner by which the front panel display always shows the parameter being varied and its value. If a new parameter just entered is not compatible with the existing setup status, the operator is informed by an error message. Test setups, up to 99 locations, can be stored and recalled. This feature allows simple test sequence development as well as no need for a controller in repetitive tests, with reduced bus traffic in ATE applications. Last user setup is also retained at power down.

APPLICATIONS

- Automatic Test Equipment (ATE)
- Avionics testing
- Radar testing
- HP8112A obsolescence replacement

LEGACY

MARVIN TEST SOLUTIONS

GP1612H SERIES

SPECIFICATIONS

PULSE FUNCTIONS

Single	One pulse at each selected period up to 50 MHz repetition rate
Double	One pair of pulses at each period up to 25 MHz repetition rate. Both pulses have the same selected width; the position of the second pulse set by the delay control.

OPERATING MODES

Continuous	Output continuous at programmed period rate.
Triggered	Output quiescent until triggered by an internal, external, GPIB or manual trigger, then generates one cycle at programmed period rate.
Gated	Same as triggered mode except pulses are output for the duration of the gated signal. The last cycle started is completed
Burst	Same as triggered mode for programmed number of cycles from 2 to 999,999 as set by the N-BURST function
External Width	Trigger duration and rate sets pulse width and repetition

TIMING CHARACTERISTICS

Period

Range	20.0 ns to 10 s (50 MHz to 0.1 Hz repetition rate)
Resolution	Up to 6 digits limited to 0.1 ns
Accuracy	$\pm1\%$ of setting $\pm$ 1 ns
Jitter	<0.1% of setting + 50 ps, decreasing to 0.01% on slowest range

WIDTH

Range	10 ns to 9.89999 s limited by 8 ns off time
Resolution	Up to 6 digits limited to 0.1 ns
Accuracy	$\pm2\%$ of setting $\pm$ 2 ns
Jitter	<(0.1% of setting + 50 pS) decreasing to 0.005% on slowest range

DELAY

Range	0 ns to 9.80000 s limited by the pulse width and 8 ns off time
Resolution	Up to 6 digits limited to 0.1 ns
Accuracy	$\pm2\%$ of setting $\pm$ 2 ns
Jitter	<0.1% of setting + 50 ps, decreasing to 0.005% on slowest range

DUTY CYCLE

Range	1 to 99%
Resolution	3 digits (0.1%)
Accuracy	Limited by width and pulse accuracy

OUTPUT CHARACTERISTICS

Amplitude

High Level Range	-7.90 V to +8.00 V into 50 Ω (-15.8 V to +16 V in open circuit)
Low Level Range	-8.00 V to +7.90 V into 50 Ω (-16 V to +15.8 V in open circuit)
Amplitude Range	0.1 V to 16 V_{PP} into 50 Ω load (32 V_{PP} (max) in open circuit)
Resolution	3 digits limited to 10 mV
Accuracy	$\pm1\%$ of level setting $\pm$ 2% of pk-pk amplitude 50 mV into 50 Ω load
Aberrations	<5% + 50 mV into 50 Ω load, for pulse levels between ±5 V
Output Resistance	50 Ω

TRANSITION TIMES

Range	<5 ns to 100 ms variable. Leading and trailing edges settable separately and limited to 20:1 ratio between settings into one of the following ranges: 5 ns - 100 ns; 50 ns - 1.0 us; 500 ns -10 us; 5.0 μs - 100 μs; 50 μs - 1.0 ms; 500 μs - 10 ms; 5 ms - 100ms
Resoultion	3 digits limited to 0.1 ns
Accuracy	$\pm5\%$ of setting $\pm$ 2 ns
Linearity	<5% deviation from a straight line between 10% and 90% points

INTERNAL TRIGGER

Range	100 ns to 99.99 sec
Resolution	4 digits limited to 100 ns
Accuracy	0.01% $\pm$ 1 ns
Jitter	<0.1% of setting + 50 ps

INPUTS AND OUTPUTS TRIGGER INPUT

Sensitivity	500 V_{PP} (min)
Minimum Width	10 ns
Maximum Rate	50 MHz
Input Impedance	1 MΩ
Input Protection	±20 V DC plus peak AC
Range	Selectable from -10 V to +10 V
Resolution	3 digits limited to 10 mV
Accuracy	$\pm5\%$ of setting $\pm$ 50 mV
Slope Selection	Positive or Negative

SYNC OUTPUT

A TTL level pulse at programmed period. Output impedance is 50 Ω, protected against short circuit. The high level is > 2.4 V into 50 Ω.

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GPIB PROGRAMMING	
Specification	IEEE-488.2
Compatibility	With HP8112A GPIB command set.
Address	0 - 30 front panel selected
GENERAL	
Memory	Non-volatile stores up to 99 complete panel settings. Last user setup also retained at power down.
Power Requirements	90 - 256 V, 48 - 66 Hz, 70 VA (max)
Dimensions (Without Rack Mount Kit)	8.9 cm H x 21.3 cm W x 35.7 cm L (3.5" x 8.4" x 14")
Weight	4 kg net
Operating Temperature	0 °C to +50 °C
Storage Temperature	+20 °C to +60 °C
Humidity	95% RH, 0 °C to +30 °C, 75% RH to +40 °C, 45% RH to +50 °C
Accessories	19' rack mount kit, optional
CE Compliant	Yes

Note: Specifications are subject to change without notice

ORDERING INFORMATION

GP1612H	Programmable Pulse Generator - Hewlett Packard 8112A Compatible
GP1612HR	HP8112 Pulse Generator Replacement Product with Rack Mount Ear
ACCESSORY	
GT90002	GPIB Cable, Double-shielded, 1 meter
GT90003	GPIB Cable, Double-shielded, 2 meters
GP1612H-EAR	Rack Mount Ear for GP1612H

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