

KEYSIGHT TECHNOLOGIES (AGILENT HP)

8111A

The HP Keysight Agilent 8111A is a highly versatile 20 MHz Pulse/Function Generator that combines pulse generator and function generator capabilities into a single, compact unit. It features fully programmable operation over HP-IB (GPIB) and provides versatile capabilities including triggered operation for all waveforms, variable duty cycle/pulse width, and VCO control.

SPECIFICATIONS

General

Interfaces	HP-IB (GPIB)
Display	3-digit 7-segment LED display with status indicators
Warm-up Time	30 minutes
Recommended Calibration Interval	1 year

Physical

Power Supply	100 / 120 / 220 / 240 V AC (+5%, -10%), 48 to 440 Hz, 70 VA max
Operating Temperature	0 to 55 °C °C
Dimensions (W×H×D)	212.3 mm × 88 mm × 345 mm mm
Weight	4.1 kg

Channel Characteristics

Number of Channels	1
Operating Modes	Normal, Trigger, Gate, VCO, Burst (Option 001)

Waveform Generation

Standard Waveforms	Sine, triangle, square, pulse
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Frequency Specifications

Sine Frequency Range	1 Hz to 20 MHz
Square/Pulse Frequency Range	1 Hz to 20 MHz
Ramp/Triangle Frequency Range	1 Hz to 20 MHz
Frequency Resolution	3 digits
Frequency Accuracy	±5% of setting ± 1 digit

Sine Wave Distortion and Purity

Harmonic Distortion (10 Hz to 50 kHz)	< 1% THD
Spurious Noise (50 kHz to 20 MHz)	< -30 dB
Sine Flatness (100 Hz to 1 MHz)	±3%
Sine Flatness (1 MHz to 20 MHz)	±5%

Pulse & Square Wave Characteristics

Rise/Fall Time	< 12 ns (10% to 90% at maximum amplitude)
Overshoot and Ringing	< 5% of peak-to-peak amplitude
Duty Cycle Range	10% to 90% (1% resolution)

Amplitude and Output Characteristics

Amplitude Range (into 50 Ω)	16.0 mV to 16.0 V peak-to-peak
Amplitude Range (into Open Circuit)	32.0 mV to 32.0 V peak-to-peak
Amplitude Resolution	3 digits
Amplitude Accuracy	$\pm 5\%$ of setting ± 1 digit
DC Offset Range (into 50 Ω)	± 8.00 V
DC Offset Range (into Open Circuit)	± 16.0 V
Output Impedance	50 $\Omega \pm 5\%$
Output Protection	Short-circuit proof, protected against external voltages up to ± 16 V
Main Output Connector Type	BNC

Modulation, Sweep, and Burst

VCO Input Range	0 to -10 V
VCO Frequency Control Range	1:1000 (3 decades) on all ranges except 20 MHz range
VCO Input Impedance	10 k Ω
Burst Count Range (Option 001)	1 to 1999 cycles
Burst Trigger Sources (Option 001)	Manual, External, HP-IB

Clock, Trigger, and Synchronization

External Input Connector	BNC
External Input Impedance	10 k Ω
Minimum External Input Pulse Width	20 ns
Trigger Output Pulse Width	approx. 15 ns

Physical and Environmental

Storage Temperature Range	-40 to +75 $^{\circ}\text{C}$
Operating Humidity Range	95% RH max (at 40 $^{\circ}\text{C}$)
Weight (Shipping)	5.7 kg

Performance

Triangle/Ramp Linearity	< 1% deviation from best straight line (10% to 90% amplitude, ≤ 50 kHz)
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Trigger and External Input

Maximum External Input Voltage	± 20 V
Trigger Output Impedance	50 Ω nominal
Trigger Output Transition Time	< 10 ns

Interfaces

GPIO Interface Codes	SH1, AH1, T6, L4, SR1, RL1, PP0, DC1, DT1, C0
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Pulse Characteristics

Duty Cycle Resolution	1%
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DC Offset

DC Offset Resolution	3 digits
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Environmental

Maximum Operating Altitude	4600 m
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Frequency Stability

Frequency Stability (8 hours)	< $\pm 0.1\%$ (after 1 hr warm-up)
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Frequency Temperature Coefficient	< $\pm 0.1\%$ per $^{\circ}\text{C}$
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Amplitude Stability

Amplitude Temperature Coefficient	< $\pm 0.1\%$ per $^{\circ}\text{C}$
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DC Offset Temperature Coefficient	< $\pm(0.1\%$ of setting + 0.1% of range) per $^{\circ}\text{C}$
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Trigger & Gate

Propagation Delay (External Input to Main Output)	approx. 55 ns
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Option 001 Burst & Internal Trigger

Internal Trigger Period Range (Option 001)	1.0 μs to 999 ms
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Internal Trigger Period Resolution (Option 001)	3 digits
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Internal Trigger Period Accuracy (Option 001)	$\pm 5\%$
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Burst Start/Stop Phase Range (Option 001)	approx. -80° to $+80^{\circ}$
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Burst Maximum Output Frequency (Option 001)	20 MHz (sine/square), 2 MHz (triangle)
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Compliance

RFI and EMI Compliance	Meets VDE 0871 Level B and MIL-STD-461A (Cat. II)
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APPLICATIONS

Electronic Test & Measurement

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.