

KEYSIGHT TECHNOLOGIES (AGILENT HP)

81150A

The Keysight (formerly Agilent) 81150A is a versatile, high-precision Pulse Function Arbitrary Noise Generator. It is designed to deliver fast, accurate signals for performance verification, characterization, and worst-case scenario testing. It offers up to 120 MHz pulse generation with variable transition times, 240 MHz sine waveforms, and high-fidelity 14-bit, 2 GSa/s arbitrary waveforms with 512 kSa memory per channel. Configurable with 1 or 2 channels, it provides differential outputs, extensive modulation capabilities up to 10 MHz, and specialized noise generation featuring a selectable crest factor and a repeatable cycle of up to 26 days.

SPECIFICATIONS

General

Interfaces	LAN, USB, GPIB
Warm-up Time	30 minutes

Physical

Operating Temperature	0 to +55 °C °C
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General Output Characteristics

Number of Channels	1 or 2 (configuration dependent)
Output Impedance	50 Ω or 5 Ω (selectable)
Channel Coupling / Tracking Modes	Coupled and uncoupled
Output Type	Differential outputs

Pulse Characteristics

Pulse Frequency Range	1 μ Hz - 120 MHz
Variable Transition Time (Rise/Fall)	Supported

Function Generator (Standard Waveforms)

Sine Frequency Range	1 μ Hz - 240 MHz
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Arbitrary Waveform Characteristics

Maximum Sample Rate	2 GSa/s
Vertical Resolution	14-bit
Waveform Length / Memory Depth	512 kSa per channel

Noise Generator Characteristics

Noise Types	Random noise and repeatable noise
Crest Factor	Selectable
Noise Repetition Time	Up to 26 days

Modulation

Supported Modulation Types	AM, FM, PW, PWM, FSK
Maximum Modulation Frequency	10 MHz

Connectivity and Software

Programming Language / Command Set	SCPI
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Waveform Characteristics

Standard Waveforms	Sine, Square, Ramp, Pulse, Noise, DC, Arbitrary
Square Frequency Range	1 μ Hz to 120 MHz
Ramp Frequency Range	1 μ Hz to 5 MHz

Performance

Pulse Jitter (RMS)	2.5 ps (typical)
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Amplitude & Output

Output Amplitude (into 50 Ω)	50 mVpp to 5 Vpp
Output Amplitude (into open circuit)	100 mVpp to 10 Vpp
Voltage Window (into 50 Ω)	± 5 V
Voltage Window (into open circuit)	± 10 V
Amplitude Resolution	4 digits

Trigger & Control

Trigger Modes	Continuous, Triggered, Gated, Burst
Trigger Sources	Internal, External, Manual, Bus

Inputs & Outputs

External Trigger Input Impedance	Selectable 50 Ω or 10 k Ω
External Reference Input Frequency	10 MHz
Internal Reference Output Frequency	10 MHz

Data Pattern Generation

Pattern Data Rate	1 bit/s to 120 Mbit/s (with Option PAT)
PRBS Lengths	2 ⁷ -1, 2 ¹⁰ -1, 2 ¹¹ -1, 2 ¹⁵ -1, 2 ²³ -1, 2 ³¹ -1 (with Option PAT)

TECHNOLOGY

Direct Digital Synthesis (DDS) / Arbitrary Waveform Generation

APPLICATIONS

Device characterization, margin testing, signal emulation, serial data testing, worst-case scenario testing

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