

KEYSIGHT TECHNOLOGIES (AGILENT HP)

81180B

The Keysight (formerly Agilent) 81180B is a high-performance 4.6 GSa/s Arbitrary Waveform Generator designed for applications demanding extreme speed, high bandwidth, and exceptional signal fidelity. Featuring 12-bit vertical resolution, two phase-coherent channels, and up to 2 GHz of I/Q modulation bandwidth, the 81180B offers three software-selectable output amplifiers to optimize signals for direct RF, I/Q, or low-overshoot time-domain applications.

SPECIFICATIONS

General

Interfaces	LAN, USB, GPIB
Display	4-inch Color LCD

Physical

Power Supply	100 to 240 VAC, 50 to 60 Hz
Operating Temperature	0 to 50 °C °C
Dimensions (W×H×D)	352 mm × 144 mm × 418 mm mm
Weight	7.5 kg

Core Architecture

Number of Channels	2 (coupled and phase coherent / uncoupled)
Vertical Resolution	12 bits
Maximum Sample Rate	4.6 GSa/s
Minimum Sample Rate	10 MSa/s
DAC Resolution	12 bits

Arbitrary Waveform Performance

Maximum Waveform Memory Depth	64 MSa per channel (option dependent)
Minimum Segment Length	320 points
Segment Length Resolution	16 points
Maximum Number of Segments	16,384
Pre-defined Waveforms	10 built-in waveforms
Dynamic Sequence Control	Real-time 8-bit external sequence/segment control

Main Analog Outputs

Number of Selectable Output Paths	3 (software-selectable)
Direct DAC Output Coupling	DC-coupled
Direct DAC Output Type	Differential
Direct DAC Path Bandwidth	1 GHz
DC-Coupled Amplifier Path Coupling	DC-coupled
DC-Coupled Amplifier Max Output	2 V _{pp} into 50 Ω
DC-Coupled Amplifier Bandwidth	>600 MHz
AC-Coupled Amplifier Path Coupling	AC-coupled
AC-Coupled Amplifier Max Output	10 dBm
AC-Coupled Amplifier Bandwidth	>1.5 GHz
Output Impedance	50 Ω
Output Connector Type	SMA

Clock & Timebase Specs

Interchannel Skew Control Range	-3 ns to +3 ns
Interchannel Skew Resolution	10 ps
Multi-Instrument Synchronization	Up to 4 channels using two synchronized units

Trigger and Gate Inputs

Smart Trigger Capabilities	Trigger hold-off, programmable pulse width
Trigger Input Modes	Wait for waveform end, or abort and restart

Marker and Auxiliary Outputs

Number of Marker Outputs	2 per channel
Marker Controls	Adjustable width and level
Marker DAC Resolution Impact	None (markers do not reduce DAC resolution)

Modulation Capabilities

I/Q Modulation Bandwidth	1 GHz
Carrier Frequency	1.5 GHz

System Connectivity & Software Support

LXI Compliance Class	LXI Class C
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Model Options

Waveform Memory Options	16 MSa per channel (81180B-216), 64 MSa per channel (81180B-264)
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Environmental, Safety & Calibration

Storage Temperature Range	-40 °C to +70 °C
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Clock Characteristics

Internal Reference Stability	±1 ppm
Sample Clock Jitter	< 2 ps rms
Sample Clock Resolution	8 digits
External Reference Input Frequency	10 MHz / 20 MHz / 50 MHz / 100 MHz
External Reference Input Impedance	50 Ω (AC coupled)

Power Specifications

Mains Voltage Range	100 V AC to 240 V AC
Power Consumption	< 150 VA

Output Characteristics

Direct DAC Path Rise/Fall Time	< 150 ps (10% to 90%, typical)
DC-Coupled Path Rise/Fall Time	< 600 ps (10% to 90%)
AC-Coupled Path Rise/Fall Time	< 450 ps (10% to 90%)

Trigger Characteristics

Trigger Input Impedance	50 Ω or 10 kΩ (selectable)
Trigger Input Threshold Range	-5 V to +5 V
Trigger Minimum Pulse Width	2 ns

Marker Outputs

Marker Output Level	0.5 V to 1.2 V (programmable into 50 Ω)
Marker Output Rise/Fall Time	< 150 ps
Marker Output Impedance	50 Ω

TECHNOLOGY

Arbitrary Waveform Synthesis

APPLICATIONS

I/Q Modulation, RF Signal Generation, High-Speed Digital Testing

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