

# Agilent 81160A Pulse Function Arbitrary Noise Generator

Quad versatility, optimized signal fidelity up to 660 Mbit/s - signal generation with confidence

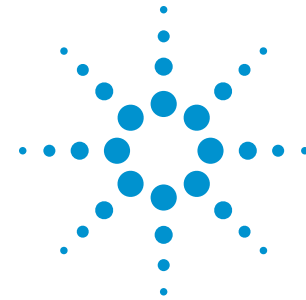
**Standard, complete connectivity!**  
LXI Class C compliant



1. Couple/uncouple channels/channel add
2. USB 2.0A
3. Channel 1: differential output
4. Channel 2: differential output
5. Sync outputs A and B with selectable trigger or strobe functionality
6. Trigger mode
7. Waveform mode
8. Advanced mode: modulation/sweep/burst

## A 4-in-1 device for accelerated and accurate insight into your device

- Create pulse, sine, square, ramp, noise and arbitrary waveforms to test your device—not the source.
- Emulate effects like capacitive load of the channel, asymmetric delay, crossing point deviations, duty cycle distortions, arbitrary transition times, level noise, delays from/to electrical idle by defining the transitions so that the previous bit influences the current bit.
- A 2 Channel version can be used either as 2 independent generators or as time synchronized coupled or added.
- Integrated in one instrument, which increases signal performance, minimizes cabling, space and test time.
- Glitch free change of timing parameters (delay, frequency, transition time, width, delay cycle).
- Programming language compatible with Agilent 81101A, 81104A, 81110A and 81150A.



Key specifications	Description
Bandwidth	1 $\mu$ Hz to 330 MHz (500 MHz sine)
Waveforms	Noise, adjustable crest factor, sine, pulse, square, ramp, arbitrary waveform
Channels	1 or 2, differential outputs
Output amplitude	<ul style="list-style-type: none"> <li>• 50 <math>\Omega</math> into 50 <math>\Omega</math></li> <li>• 50 <math>\Omega</math> into open</li> </ul> <ul style="list-style-type: none"> <li>• 50 mV<sub>pp</sub> to 5 V<sub>pp</sub></li> <li>• 100 mV<sub>pp</sub> to 10 V<sub>pp</sub></li> </ul>
Modulation types	AM, FM, PM, FSK, PWM external and internal
Transition times	1 ns to 1000 s
Output impedance	50 $\Omega$
Sample rate	14-bit, 2.5 GSa/s arbitrary waveform
Memory #001	Arbitrary: up to 256 k points Pattern: 4 Mbit
Memory #002	Arbitrary: up to 128 k points per channel Pattern: 2 Mbit per channel
Noise repetition rate	20 days
Option pattern generator	<ul style="list-style-type: none"> <li>• Ideal and arbitrary bit shaped pattern</li> <li>• Three level signals</li> <li>• PRBS up to 2<sup>31</sup></li> </ul>
Display	Color, bright
Programming interfaces	LAN, SCPI-1997, IEEE 488.2 (GPIB), USB
Supported drivers and software applications	Agilent VEE, IVI-COM, Agilent Bench Link Waveform Builder Pro, NI Labview, Matlab®

## Choose your hardware

Code	Description
#001	81160A with 1 channel
#002	81160A with 2 channels
#DOC	Printed documentation
#1CP	Rack mount kit
#Z54	Z540.3 calibration documents
#1A7	ISO 17025 calibration documents
#330	330 Mbit/s pattern generator license
#660	660 Mbit/s pattern generator license



# Quick Fact Sheet

## Pulse pattern generator selection guide

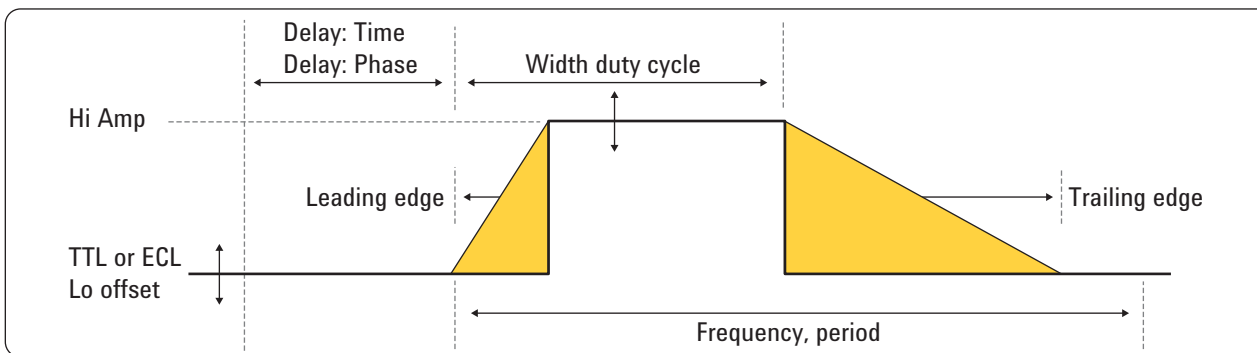
Model	Pulse rate	Channels	Voltage
81101A	50 MHz	1 ch	100 mV to 10 V
81104A + 81105A	80 MHz	1 or 2 ch	100 mV to 10 V
81110A + 81111A	165 MHz	1 or 2 ch	100 mV to 10 V
81110A + 81112A	330 MHz	1 or 2 ch	100 mV to 3.8 V
81130A + 81131A	400 MHz	1 or 2 ch	100 mV to 3.8 V
81130A + 81132A	660 MHz	1 or 2 ch	100 mV to 2.5 V
81150A#001	120 MHz	1 ch	50 mV to 10 V
81150A#002	120 MHz	2 ch	50 mV to 10 V

## Complementary products

Model	Description
DSO/MSO 9104A	Infiniium DSO/MSO Oscilloscope with 1 GHz bandwidth
DSO/MSO 6000, 7000	InfiniVision 7000 Series Oscilloscopes up to 1 GHz bandwidth
DSO/MSO 9064A	Infiniium DSO/MSO Oscilloscope with 600 MHz bandwidth
DSO/MSO 8064A	Infiniium DSO/MSO Oscilloscope with 600 MHz bandwidth
DSO/MSO 5000	InfiniVision 5000 Series Oscilloscopes up to 500 MHz bandwidth
33210A, 33220A, 33250A	Function/arbitrary waveform generator, 10, 20 and 80 MHz, 1 channel
33521A, 33522A	Function/arbitrary waveform generator, 30 MHz, 1 channel, 2 channels

## Generate the signal you need

All parameters can be selected and edited with the Agilent Pulse Pattern Generators



## Just generate the signal you need

Precise signals and distorted signals to stress your device to its limits:

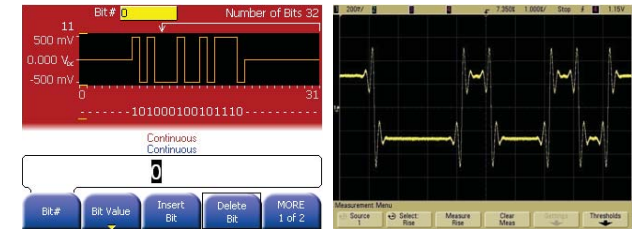


Figure 1. Pattern setup with sequencing.

Figure 2. Distorted pattern for real-world conditions.

## Typical applications

- Pattern generation
- Digital and mixed signal device testing
- HDMI compliance testing
- Sensor simulation
- Clock signal generation
- Radar distance testing
- Disc drive tests
- Noise and jitter source with selectable crest factor
- Signal source with modulation
- Pulsed IV measurements
- System trigger source
- Capture and reproduce live signals

[www.agilent.com](http://www.agilent.com)

[www.agilent.com/find/81160](http://www.agilent.com/find/81160)

### Recommended service options

Additional two years of Return-to-Agilent warranty  
 Additional two years of Return-to-Agilent calibrations  
 For more information go to [www.agilent.com/find/removealldoubt](http://www.agilent.com/find/removealldoubt)



[www.lxistandard.org](http://www.lxistandard.org)

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