TEKTRONIX

AWG5208

The Tektronix AWG5208 is an 8-channel Arbitrary Waveform Generator (AWG) engineered for high-fidelity RF and experimental signal generation. Combining a 16-bit vertical resolution, a native sample rate up to 5 GS/s (interpolated to 10 GS/s), and a deep 2 GSamples/channel memory, the AWG5208 is optimized for advanced applications like quantum computing research, electronic warfare, and radar simulation.

SPECIFICATIONS

General

Display	6.5-inch color TFT touchscreen, 1024 x 768 XGA

Physical

Operating Temperature	0 to +50 °C

Channel Configuration & Core Architecture

Number of Channels	8
DAC Resolution	16 bits
Maximum Sample Rate	2.5 GS/s (5 GS/s with 2x interpolation)
Run Modes	Continuous, Triggered, Triggered Continuous, Gated, Sequence
Signal Outputs	Differential or Single-ended
Output Coupling	DC-coupled (standard), AC-coupled (with Option AC)

Arbitrary Waveform Performance

Waveform Memory Depth	2 GS/channel
Minimum Segment Length	240 samples
Waveform Granularity	1 sample
Vertical Resolution	16 bits
Sample Rate Range	10 MS/s to 2.5 GS/s
Analog Bandwidth	2 GHz (typical, direct path)
Rise/Fall Time	<110 ps (direct output, 20% to 80%)

Standard Waveform Performance

Standard Waveform Shapes	Sine, Square, Pulse, Ramp, Triangle, Noise, DC

Output Characteristics

Output Impedance	50 Ω
Direct Path Amplitude Range (Single-Ended)	100 mVp-p to 750 mVp-p into 50 Ω
Direct Path Amplitude Range (Differential)	200 mVp-p to 1.5 Vp-p into 50 Ω
Output Protection	Short-circuit protected

Sequencing & Modulation

Maximum Loop Count	1 to 1,048,576 or infinite
Sequence Advance Modes	Auto, Triggered, Gated

Trigger & Synchronization

Trigger Sources	Internal, External
External Trigger Threshold Range	-5.0 V to +5.0 V
External Reference Input Frequency	10 MHz, 100 MHz, or 1 GHz (selectable)
Internal Reference Frequency Accuracy	±1 ppm (initial accuracy)
Internal Reference Aging Rate	±1 ppm/year
Marker Outputs per Channel	4
Marker Output Amplitude	-1.0 V to +1.75 V into 50 Ω

System Connectivity & Control

Front Panel Controls	Touchscreen, power button
Display Size	6.5 inches
Display Resolution	1024 x 768 pixels
LXI Compliance	LXI Class C compatible

Power & Environmental Specifications

AC Input Voltage Range	100 V AC to 240 V AC
AC Input Frequency Range	50 Hz to 60 Hz
Operating Temperature Range	0 °C to +50 °C
Storage Temperature Range	-20 °C to +60 °C
Operating Humidity Range	5% to 90% RH (at or below +30 °C)
Operating Altitude	Up to 3,000 m (10,000 ft)

Physical Characteristics & Compliance

Form Factor	Benchtop or 3U rackmount
Recommended Calibration Cycle	1 year

System Characteristics

Operating System	Windows 10 Enterprise IoT 64-bit
Storage Capacity	512 GB removable PCIe Gen3 x4 NVMe SSD

Channel-to-Channel Characteristics

Skew Calibration Range	±2 ns
Skew Calibration Resolution	250 fs

Interfaces

USB Ports	2x USB 2.0 (front), 4x USB 3.0 (rear), 1x USB 3.0 Device (rear)
Video Outputs	1x DVI-D, 1x DisplayPort
GPIB Interface	Supported via TEK-USB-488 adapter

Clock System

Reference Output Frequency	10 MHz
Reference Output Amplitude	1.2 Vp-p into 50 Ω

Waveform Generation

Digital Up-Converter Option	Enables baseband and IQ generation (Option DUC)
Digital Pattern Output Option	32-bit digital pattern output (Option 32DIG)

Markers

Marker Source Impedance	50 Ω
Marker Output Rise/Fall Time	< 150 ps (20% to 80%)

Clock & Reference

External Reference Input Amplitude	0.2 Vp-p to 3.0 Vp-p
External Reference Input Impedance	50 Ω (AC coupled)

TECHNOLOGY

Arbitrary Waveform Generator

APPLICATIONS

RF signal generation, quantum computing, electronic warfare simulation, and high-speed digital testing