

TEKTRONIX

AWG7052

The Tektronix AWG7052 is a high-performance Arbitrary Waveform Generator (AWG) designed to meet demanding signal-generation needs in high-speed digital, RF, and semiconductor testing. Offering a sample rate of 5.0 GS/s across 2 independent channels with up to 10-bit vertical resolution, it delivers exceptional signal fidelity and timing accuracy. Built on an open Windows XP platform, the AWG7052 supports advanced synthesis software such as RFXpress and SerialXpress, facilitating complex real-time sequencing, jitter insertion, and precise channel-to-channel deskew.

SPECIFICATIONS

General

Interfaces	LAN (10/100/1000Base-T), GPIB (IEEE 488.2), USB 2.0 (6 ports), RS-232, VGA, DVI-D, PS/2
Display	10.4-inch color TFT LCD touch screen, 1024 × 768 XGA resolution

Physical

Power Supply	100 to 240 V AC, 47 to 63 Hz, max 450 W (450 VA)
Operating Temperature	10 to 40 °C °C
Dimensions (W×H×D)	445 × 245 × 462 mm mm
Weight	19.0 kg

Channel Configuration & Core Architecture

Number of Channels	2
Maximum Sample Rate	5.0 GS/s
Minimum Sample Rate	10 MS/s
DAC Resolution	10-bit (no markers) or 8-bit (with 2 markers per channel)

Arbitrary Waveform Performance

Standard Memory Depth	32 Mpoints per channel (32,400,000 points)
Optional Memory Depth (Option 01)	64 Mpoints per channel (64,800,000 points)
Waveform Granularity	1 point
Analog Bandwidth (Normal Output)	1.8 GHz (-3 dB)
Analog Bandwidth (Direct Output)	3.5 GHz (-3 dB)
Rise/Fall Time (Normal Output)	220 ps (20% to 80%, typical)
Rise/Fall Time (Direct Output)	130 ps (20% to 80%, typical)
Total Jitter	50 ps p-p (at 10 ⁻¹² BER, typical)
Overshoot (Normal Output)	< 10% (typical)
Overshoot (Direct Output)	< 10% (typical)

Output Characteristics

Inter-channel Skew Range	±100 ps
Skew Resolution	1 ps
Output Impedance	50 Ω
Output Connector	SMA
Normal Output Amplitude Range (Single-ended)	50 mV p-p to 1.0 V p-p
Normal Output Amplitude Range (Differential)	100 mV p-p to 2.0 V p-p
Normal Output Amplitude Resolution	1 mV
Direct Output Amplitude Range (Single-ended)	50 mV p-p to 1.0 V p-p
Normal Output DC Offset Range	-0.5 V to +0.5 V
Normal Output DC Offset Resolution	1 mV
Marker Outputs	4 (2 per channel, available only in 8-bit mode)
Marker Output Connector	SMA
Marker Output Amplitude Range	0.5 V p-p to 2.0 V p-p
Marker Output Resolution	10 mV
Marker Delay Control Range	Up to 300 ps
Marker Delay Control Resolution	1 ps

Sequencing & Modulation

Sequence Loop Count	1 to 65,536 or Infinite
Sequence Advance Modes	Auto, Triggered, Gated
Sequence Steps	Up to 16,000 steps

Trigger & Synchronization

Trigger Sources	External, Internal, Manual
External Trigger Input Impedance	50 Ω or 1 kΩ (selectable)
External Trigger Input Range	-5.0 V to +5.0 V
External Trigger Threshold Resolution	0.1 V
External Reference Input Frequency	10 MHz, 20 MHz, 100 MHz
Internal Reference Frequency Accuracy	±1 ppm

System Connectivity & Control

Operating System	Windows XP Professional
Removable Storage	Removable Hard Disk Drive
Optical Drive	Built-in CD-RW/DVD-ROM
USB Ports	6 (2 front, 4 rear)
Software Compatibility	RFXpress, SerialXpress

Power & Environmental Specifications

Storage Temperature	-20 °C to +60 °C
Operating Humidity Range	5% to 80% (non-condensing)
Operating Altitude	Up to 3,000 m (10,000 ft)

Physical Characteristics & Compliance

Form Factor	Benchtop
Standard Calibration Cycle	1 year
Standard Warranty Period	1 year

Performance

SFDR (at 100 MHz)	-62 dBc (typical)
SFDR (at 1 GHz)	-50 dBc (typical)
Phase Noise (100 MHz carrier, 10 kHz offset)	-115 dBc/Hz (typical)
Harmonics (Normal Output, 100 MHz)	<-50 dBc (at 5 GS/s)
Harmonics (Direct Output, 100 MHz)	<-45 dBc (at 5 GS/s)
Phase Noise (1 GHz carrier, 10 kHz offset)	-100 dBc/Hz (typical)
Random Jitter (Internal Clock)	0.9 ps RMS (typical)
Marker Random Jitter	4.5 ps RMS (typical)
Marker-to-Analog Alignment	±50 ps (typical)

Auxiliary Inputs & Outputs

External Clock Input Frequency Range	100 MHz to 5.0 GHz
External Clock Input Connector	SMA (rear panel)
External Clock Output Amplitude	1.0 Vp-p into 50 Ω
External Clock Output Connector	SMA (rear panel)
Reference Output Frequency	10 MHz
Reference Output Amplitude	1.2 Vp-p into 50 Ω
Reference Output Connector	BNC (rear panel)
Analog Add Input Bandwidth	DC to 100 MHz (-3 dB)
Analog Add Input Connector	SMA (rear panel)
Event Input Threshold Range	-5.0 V to +5.0 V

Trigger & Event Inputs

External Trigger Minimum Pulse Width	20 ns
Event Input Minimum Pulse Width	20 ns

Clock & Reference

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

Inputs & Outputs

Analog Add Input Impedance	50 Ω
Analog Add Input Range	±1.0 V

Compliance & Environmental

Safety Compliance	UL 61010-1, CAN/CSA-C22.2 No. 61010-1, EN 61010-1, IEC 61010-1
EMC Compliance	EN 55011 Class A, IEC 61000-3-2

TECHNOLOGY

Arbitrary Waveform Generation

APPLICATIONS

High-speed digital design, RF signal synthesis, disk drive characterization, and semiconductor test

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