TEKTRONIX

AWG7102

The Tektronix AWG7102 is a high-performance arbitrary waveform generator from the AWG7000 Series, delivering dual-channel signal generation with sample rates up to 10 GS/s per channel (and up to 20 GS/s interleaved). It offers superior signal fidelity with direct AC-coupled analog outputs, variable marker outputs, and sophisticated sequencing capabilities to resolve challenging design, characterization, and debugging tasks in high-speed digital, RF, and communications systems.

SPECIFICATIONS

General

Display	10.4-inch XGA color TFT touch screen, 1024 x 768 resolution
Recommended Calibration Interval	1 year

Physical

Power Supply	100 to 240 V AC, 47 to 63 Hz, 450 W maximum
Operating Temperature	10 to 40 °C

Channel and Signal Architecture

Number of Channels	2
DAC Resolution	10-bit (without marker outputs) or 8-bit (with 2 marker outputs per channel)
Maximum Sampling Rate	10 GS/s (standard), 20 GS/s (interleaved)
Interleaving Support	Yes (with Option 06)
Analog Bandwidth	3.5 GHz (standard) / 5.0 GHz (interleaved)
Waveform Memory Depth	32 M points per channel (64 M points with Option 01)

Waveform and Sequencing Capabilities

Sequence Length	1 to 16,000 steps
Sequence Loop Count	1 to 65,536 or infinite
Conditional Jump Triggering	Yes (via Event Input or Software)
Waveform Execution Modes	Continuous, Triggered, Gated, Sequence

Analog Output Specifications

Output Types	Differential or Single-ended
Output Impedance	50 Ohms
Output Amplitude Range (Direct)	50 mVp-p to 1.0 Vp-p (single-ended), 100 mVp-p to 2.0 Vp-p (differential)
Rise and Fall Time (Direct Output)	45 ps (20% to 80%, typical)
Inter-channel Skew Control Range	+/-100 ps
Inter-channel Skew Control Resolution	1 ps

Auxiliary and Marker Outputs

Number of Marker Outputs per Channel	2 (available in 8-bit vertical resolution mode)
Total Marker Outputs	4 (2 per channel)
Marker Rise and Fall Time	45 ps (20% to 80%)

Clock and Reference Specifications

Reference Output Frequency	10 MHz
External Clock Input Frequency Range	5 GHz to 10 GHz

Trigger and Synchronization

Trigger Input Impedance	50 Ohms or 1 kOhm
Trigger Input Threshold Range	-5.0 V to +5.0 V
Trigger Input Threshold Resolution	0.1 V
Trigger Input Minimum Pulse Width	20 ns
Event Input Connector	9-pin D-sub (rear panel)
Event Input Threshold Range	-5.0 V to +5.0 V
Event Input Impedance	1 kOhm
Event Input Minimum Pulse Width	20 ns

Connectivity and Interfaces

LAN Interface Speed	10/100/1000 Base-T Gigabit Ethernet

Software and Control

Embedded Operating System	Windows XP Professional

Power and Physical Specifications

Form Factor	Benchtop (rackmount kit available)

Environmental and Compliance

Storage Temperature Range	-20 °C to +60 °C
Operating Altitude	Up to 3,000 m (10,000 ft)
Storage Altitude	Up to 12,192 m (40,000 ft)

Options & Configuration

Option 01 Memory Expansion	64 Mpoints per channel
Option 06 Interleaved Output	Enables up to 20 GS/s sampling rate on Channel 1
Option 08 Fast Frame	Option 08 Fast Sequence

Marker Outputs

Marker Output Impedance	50 Ω

Clock Inputs & Outputs

External Clock Input Impedance	50 Ω, AC-coupled
External Clock Input Amplitude Range	0.4 Vp-p to 2.0 Vp-p
Reference Output Amplitude	1.2 Vp-p (into 50 Ω)
10 MHz Reference Input Impedance	50 Ω, AC-coupled
10 MHz Reference Input Amplitude Range	0.2 Vp-p to 3.0 Vp-p

Power Requirements

Power Consumption	450 W (maximum)

Markers

Marker Output Availability	Available in 8-bit resolution mode only (disabled in 10-bit mode)

Power

Power Input Voltage Range	100 V to 240 V AC
Power Input Frequency Range	47 Hz to 63 Hz

Environmental

Operating Vibration	0.27 g RMS (5 Hz to 500 Hz)
Non-operating Vibration	2.28 g RMS (5 Hz to 500 Hz)

TECHNOLOGY

Arbitrary Waveform Generator (AWG)

APPLICATIONS

High-speed digital, RF, and serial data signal generation, characterization, and debugging