20 MS/sec Arbitrary Waveform Generator

AWG2005.

Features

› **Specs**

Ordering Information

Pricing Information

Request a Quote

AWG2005

Characteristics

Standard Waveshapes

Sine, square, triangle, ramp, noise, arbitrary, linked sequence, and DC.

Arbitrary Waveforms

Execution Memory - Waveform: 64 k (65,535) for each channel. Marker: 64 k for each channel. Waveform Size: 16 to 64 k in multiples of 16.

Real-time Sequence Memory - 8 k individual waveforms.

Loop Counter - Waveform: 1 to 64 k repeats. Sequence: 1 to 64 k repeats.

Catalog Memory - 2 MB.

Catalog Memory Clock

Frequency Range - 0.01 Hz to 20 MHz.

Resolution - Standard: 4 digits. With Option 05: 7 digits.

Accuracy - Standard: 50 ppm (+15°C to +30°C). Option 05: 5ppm (+15°C to +30°C).

Operating Modes

Continuous - Output waveform/sequence continuous at programmed parameters.

Triggered - Output quiescent until triggered by an external, GPIB, or manual trigger; generates a waveform/sequence only one time.

Gated - Same as continuous mode except period is executed only for the duration of the gated signal until the sequence is

completed.

Seq/Wfm Advance - Continuous: Continuously outputs the waveform/sequence in the Sequence file. The next trigger advances to the next waveform/sequence. Master/Slave Operation.

Step - Output quiescent until triggered; then execute the next waveform/sequence in the Sequence file. When the loop count reaches its value, output stops and waits for next trigger.

Auto Step - Continuous: Continuously outputs the waveform/sequence in the Auto Step file. Step: Output quiescent until triggered.

Master - Provides Point Rate Clock and Trigger to a slave arbitrary waveform generator for phase synchronous parallel operation.

Slave - Receives Clock and Trigger from a system clock for parallel operation.

Main Output

Digital-to-analog Resolution - 12-Bits.

Output Impedance - 50 Ohm.

Amplitude (1 MHz Clock, 000 and FFF Waveform Data, Norm, No Filter, No Offset, Excluding and ADD Operation) -
Range: 0.05 V to 10 V_{p-p} into 50 Ohm.
Resolution: 1 mV (4 digits).
DC Accuracy: 0.050 V to 0.999 V, ±(0.5% of amplitude + 5 mV); 1.000 V to 10.000 V, ±(1% of amplitude + 50 mV).

Offset -
Range: -5.0 V to +5.0 V into 50 Ohm (-200 mA to +200 mA).
Resolution: 5 mV (4 digits).
Accuracy (1 MHz clock, 7FF waveform data, norm, no filter, amplitude range 0.05 V): -±(1% of offset + 10 mV).

Pulse Response (20 MHz clock, 000 and FFF waveform data, norm, no filter, amplitude 5 V, no offset) -
Rise/Fall Time: < 35 ns.
Flatness: Within ±3% after 150 ns from rise/fall edges.
Aberrations: Within ±7%.

Cross Talk Between Channels - 512-point sine, 20 MHz clock, norm, no filter, amplitude offset. <70 dBc.

Noise Floor -
20 MHz clock, 7FFF waveform data, norm, no filter, no offset.
0.5 V: ≤110 dBm/Hz at 1 MHz.
5.0 V: ≤95 dBm/Hz at 1 MHz.

Sinewave Characteristics - Function Generator mode, 100 Hz to 200 kHz, no offset. Flatness (1 V amplitude, 1 kHz reference): Within -4%. T.H.D. (Including up to 4th harmonics): ≤55 dBc at 5.0 V.

Auxiliary Outputs

Marker -
Amplitude: >2 V into 50 Ohm.
Impedance: 50 Ohm.
Marker to Signal Delay: 35 ns.

Clock -
Amplitude: >2 V into 50 Ohm.
Impedance: 50 Ohm.

Control Sig. -
Amplitude: >2 V into 50 Ohm.
Impedance: 50 Ohm.

Sweep (Opt. 05) -
Waveshape: Same waveshape as selected sweep.
Amplitude: 0 to 5 V (amplitude is dependent upon start and stop frequencies with a 5 V maximum limit).
Impedance: 600 Ohm.

24-Bit TTL Digital Data Out (Opt. 04) -
Output Signals (CH 1 and CH 2): D0 to D11, Clock.
Level: TTL.
Amplitude: 2 V into 50 Ohm.
Skew Between Data: Within ±10 ns.
Clock to Data Delay: Within ±10 ns.
Impedance: 50 Ohm.

Auxiliary Inputs

Trigger -
Threshold Level: -5 V to +5 V.
Resolution: 0.1 V.
Accuracy: ±(5% of Level + 0.1 V).
Minimum Pulse Width: 150 ns.
Minimum Input Swing: 0.2 V_{p-p}.
Maximum Input Volts: ±10 V (DC + peak AC).
Impedance: 10 kilohm.

Trigger to Signal Delay: Internal Clock, 400 ns (excluding clock sweep mode).

AM (512-point Sine, 20 MHz Clock, AM, No Filter, 5 V Amplitude, No Offset) -
Range: 2 V_{p-p} (-1 V to +1 V) for 100% modulation.
Amplitude Accuracy: Within 5%.
Maximum Input Volts: -5 V (DC + peak AC).
Impedance: 10 kilohm.

ADD (512-point Sine, 20 MHz Clock, Add, No Filter, 5 V Amplitude, No Offset) -
Range: 10 V_{p-p} (-5 V to +5 V).
Amplitude Accuracy: Amplitude specification plus 5%.
Maximum Input Volts: -5 V (DC + peak AC).
Impedance: 50 Ohm.

Control Sig. -
Threshold Level: TTL level (0.8 V to 2.0 V).
Minimum Pulse Width: 40 ns.
Maximum Input Volts: 5 V to 0 V.
Impedance: 10 kilohm.

Clock -
Threshold Level: TTL level (0.8 V to 2.0 V).
Minimum Pulse Width: 20 ns.
Maximum Input Volts: 5 V to 0 V.
Impedance: External Clock, 330 Ohm; Slave Mode, 10 kilohm.
Frequency Range: 1 Hz to 20 MHz.

Sweep (Opt. 05 only) -
Type: Linear, log, arbitrary.
Mode: Continuous, triggered, gated.
Update Rate: 1 s to 65,535 ms.
Points per Sweep: 8 K maximum.

Function Generator

Waveform Shape - (Predefined 100 pt. waveforms). Sine, Triangle, Square, Ramp, Pulse (1 MHz filter is inserted when Sine is selected).

Frequency - 1.000 Hz to 200 kHz.

Duty Cycle - 0% to 100%, Pulse only.

Programmable Interface

GPIB - IEEE 488.2-1987 compatible.

RS-232 - 9-Pin D connector.
See Mixed Signal Sources, Intro for Environmental Characteristics.

Top of Page

Features

Specs

Ordering Information

Pricing Information

Request a Quote

Product(s) complies with IEEE Standard 488.2-1987.

Product Area Assessed: The planning, design/development and manufacture of electronic Test and Measurement instruments.

49A-10733-4p1, 06/1997, 07/21/2000