

20MS/s Arbitrary Waveform Generator

2414A

Output Waveforms

Up to 1000 custom waveforms, Sine, Triangle, Square, +/-Ramp, DC, +/- Pulse, +/- Exponential, AM, SCM, FM, Lin/Log Sweep, Noise, Sin x/x, Gaussian, Haversine, Circle.

Sequence Generator (Optional)

Waveform: Loop and Link
Repetitions: Loop 1,000,000 times; Link 1000 waveforms
Program: 1000 Steps total
Files: 100 Sequences

Waveform Memory

Total: 160k (163,808 points)
Active: 128k (131,040 points)
Buffer: 32k (32,768 points)
Buffer accessible by RS-232C or GPIB.
Vertical Resolution: 12 bits; 4096 points (+ 2047. -2048)

Memory Partition

Active: 1000 Waveforms
Buffer: 100 Waveforms

Waveform Sampling Rate

Range: 0.1 Hz to 20MHz (10s to 50ns)
Resolution: 4 1/2 digits
Accuracy: +/- 10ppm

Waveform Rise/Fall Time

Less than 20ns, tested with squarewave, filter off, 10Vp-p, 50Ω termination.

Spectral Purity

THD + Noise: Typically below 65dB in 80kHz measurement bandwidth. Tested at 20MHz clock; sinewave; 1,000 points (20kHz); filter on; full amplitude; 50Ω termination.

Amplitude and Offset

Range	Resolution	Accuracy
+1.00 to 10V	10mV	1 % of setting + 20 mV
+100mV to 999mV	1 mV	3 % of setting + 5 mV
10mV to 99.9mV	100 μV	5 % of setting + 1 mV

Note: 50Ω source impedance, measured at open circuit tested with 1 kHz sinewave plus DC offset.

Analog Filter

User-selectable. 7MHz, 7th-order low-pass filter.

Operational Modes

Continuous, Triggered, Gated, Burst (1 to 1,048,575), Toggled, Hold, RTS.

Outputs

Output: Front-panel main waveform outputs. 50Ω impedance.

Sync Output: Front-panel TTL sync output. The address and width of the sync pulse is programmable. 50Ω impedance.

Clock In/Out: Rear-panel waveform sample clock input or output (TTL).

Reference In/Out: Rear-panel internal 10MHz reference output or external 10MHz input. (TTL)

Sync Trigger Out: Rear-panel BNC. (TTL)

Sync 3/Run Out: Rear-panel BNC. (TTL)

Sync 4/End Block Out: Rear-panel BNC. (TTL)

Inputs

Sum In: Front-panel input allows external signal to be added to output. Gain = -2 open circuit and -1 with 50Ω output termination and 50Ω input impedance.

Trigger Input: Rear-panel TTL trigger input for triggered, gated, toggled, and burst modes.

Clock In: Rear-panel waveform sample clock input (TTL <20MHz).

Reference In: Rear-panel 10 MHz reference input. The internal crystal-controlled oscillator will phase-lock to the input.

Hold In: Rear-panel TTL input to stop waveform.

RTS In: Rear-panel TTL input to initiate RTS mode.

Trigger Sources

Internal Trigger Generator: 0.02 to 10 seconds

Manual Trigger: Front-panel button

External Trigger Input: Rear-panel BNC connector

Creation Tools (Internal)

Waveform Editing: Point Mode, Line Mode, Vertex Mode; Insert Function, Sum Function, Dump Function, Digital Amplitude/Offset, Smooth, Copy/Paste, Waveform Math (A+B, A-B, AxB).

Pointing Device: Mouse or front-panel keys and knob.

DSO Data Transfer

DSOLink: Direct data download from DSO to waveform memory via RS-232C or GPIB. Compatible HPGL data format.

Stored Data

Waveforms: 1000 Active, 100 Buffer

Setups: 30 settings

Sequence: 100 files

Remote Interface

RS-232C: 19.2 kBaud, max.

GPIB: IEEE Std. 488.2-1987 (Optional)

Options

Sequence Generator

GPIB (IEEE Std. 488.2-1987)

WaveWorks Pro, waveform creation software for Windows, with a PC interconnecting cable for downloading waveforms.

General

Temperature Range: +23°C +/-3°C for specified operation.

Operates 0°C to +50°C.

Storage: -20°C to +60°C.

Dimensions: 11.5cm (4.53 in.) H; 25.8cm (10.14 in.) W; 30cm (11.81 in.) D.

Weight: 5.0kg (11 lbs)

Power: 55VA; 45W (max) 100/120/220/240 VAC, +5%, -10%; 48 to 63Hz

Weight and dimensions are approximate. Errors and omissions excepted. Prices and specifications subject to change without notice.

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