

TEKTRONIX

TG2000

The Tektronix TG2000 is a multiformat, analog and digital, precision video signal generation platform. Designed for demanding video test and measurement applications, it features a modular architecture supporting various generator modules (such as AVG1, DVG1, AWG1) and provides reference-quality test signals with nonvolatile storage.

SPECIFICATIONS

General

Reference Oscillator	Internal 27 MHz system clock, long-term stability ≤ 1 ppm/year drift
Interfaces	Ethernet (10BASE-T), GPIB (IEEE-488.2), RS-232, Dual PCMCIA Type II
Display	Monochrome backlit LCD with touch screen

Physical

Power Supply	100 to 240 V AC, 48 to 63 Hz
Dimensions (W×H×D)	483 mm x 133 mm x 551 mm mm
Weight	11.8 kg (empty mainframe) kg

System Architecture & Platform Characteristics

Mainframe Slot Capacity	8 module slots
Internal Reference Clock Frequency	27 MHz
Internal Reference Frequency Stability	≤ 1 ppm per year drift
Genlock Input Type	BNC, Passive Loopthrough
Genlock Pull-in Range	± 50 Hz (NTSC/PAL)

Analog Video Outputs (Module Dependent)

Video Channels	3 channels (Y/G, Pb/B, Pr/R) on AVG1 module
D/A Converter Resolution	10 bits on AVG1 module
Luminance Frequency Response Flatness	± 0.1 dB to 5.75 MHz on AVG1 module
Differential Gain	$< 0.1\%$ on AVG1 module
Differential Phase	$< 0.1^\circ$ on AVG1 module
Signal-to-Noise Ratio	≥ 60 dB (to 5.75 MHz) on AVG1 module
Output Impedance	75 Ω

Digital Video / SDI Outputs (Module Dependent)

SDI Data Rates Supported	270 Mbps on DVG1 module
Output Connector Type	BNC
Output Amplitude	800 mV $\pm$ 10% into 75 Ω
Rise and Fall Times	400 ps to 1500 ps (20% to 80%) on DVG1
Alignment Jitter	<0.2 UI on DVG1

Test Pattern Generation Capabilities

Standard Test Patterns	Color bars, ramp, step, pulse and bar, multiburst, sweep, matrix
Custom Pattern Loading Capability	Yes, via PCMCIA, floppy drive, or remote interface
Moving Picture / Scrolling Capabilities	Yes, programmable scrolling and bouncing box

Audio Signal Generation

Analog Audio Channels	2 channels (balanced) on AWG1 module
Audio Frequency Range	10 Hz to 20 kHz on AWG1 module
Audio Amplitude Range	-90 dBu to +24 dBu on AWG1 module
Audio Frequency Resolution	1 Hz
Audio Amplitude Resolution	0.1 dB
Total Harmonic Distortion + Noise	$\leq$ 0.003% (at 1 kHz, +18 dBu) on AWG1 module
Audio Sampling Rate	48 kHz (sync'd to video on DVG1)

Connectivity & Control Interfaces

Ethernet Port Type and Speed	10BASE-T (RJ-45)
GPIO (IEEE-488) Interface	IEEE-488.2
RS-232 Serial Port	9-pin D-sub
PCMCIA / Flash Card Expansion Slot	Two Type II slots on front panel

Software & Programmability

Remote Control Command Set	SCPI (Standard Commands for Programmable Instruments)
Preset and Configuration Storage Capacity	Nonvolatile RAM-based storage

Power Specifications

Input Voltage Range	100 to 240 V AC
Input Frequency Range	48 to 63 Hz
Power Consumption (Maximum)	250 W

Physical Characteristics

Form Factor	3U Rackmount / Benchtop
Rackmount Height Units	3U

Environmental & Reliability

Operating Temperature Range	0 °C to +50 °C
Storage Temperature Range	-40 °C to +65 °C
Operating Altitude Maximum	4572 m (15000 ft)
Storage Altitude Maximum	15240 m (50000 ft)

Compliance & Certifications

Safety Standards Met	UL3111-1, CSA C22.2, EN61010-1
Electromagnetic Compatibility (EMC)	EN55011 Class A, EN50082-1

Interfaces

Keyboard Interface	Front panel AT-style (5-pin DIN) connector for external PC keyboard
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Storage

Floppy Disk Drive	3.5-inch, 1.44 MB, DOS-compatible format
Internal Flash Memory	2 MB standard for instrument software and user pattern storage
System RAM	8 MB standard

AVG1 Module Performance

AVG1 Module Output Configuration	3 analog channels (configurable as GBR, YPbPr, or Composite/Y/C) plus 1 dedicated Black Burst output
AVG1 Chroma-to-Luma Delay Inequality	≤ 5 ns
AVG1 Line Tilt	$\leq 0.5\%$
AVG1 Field Tilt	$\leq 0.5\%$
AVG1 Short-time Distortion	$\leq 0.5\%$

GP1 Genlock Module

GP1 Genlock Input Formats	NTSC/PAL Black Burst, HDTV Tri-level Sync, 1, 5, or 10 MHz CW
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Environmental

Operating Humidity Range	20% to 80% RH (non-condensing)
Storage Humidity Range	5% to 90% RH (non-condensing)
Operating Vibration	0.27 g RMS, 5 Hz to 500 Hz
Non-Operating Vibration	2.28 g RMS, 5 Hz to 500 Hz
Non-Operating Shock	294 m/s ² (30 g), half-sine, 11 ms duration

DVG1 Module

DVG1 Output Return Loss	> 15 dB (5 MHz to 270 MHz)
DVG1 Output Jitter	< 0.2 UI

HDVG1 Module	
HDVG1 Output Return Loss	> 15 dB (5 MHz to 742.5 MHz), > 10 dB (742.5 MHz to 1.485 GHz)
HDVG1 Output Jitter	< 0.2 UI
HDVG1 Coaxial Cable Drive Capability	Up to 100 m of Belden 1694A

BG1 Module	
BG1 Output Return Loss	> 40 dB to 5 MHz
BG1 SCH Phase Accuracy	0° ± 5°

AGL1 Module	
AGL1 Input Return Loss	> 40 dB to 5 MHz

TECHNOLOGY	
Modular Multiformat Video Signal Generation	

APPLICATIONS	
Precision video signal generation, calibration, and test system testing	

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