

TEKTRONIX

DG2040

The Tektronix DG2040 is a high-performance, dual-channel digital pattern generator capable of data rates up to 1.1 Gb/s. Designed for testing high-speed logic devices, circuits, and serial data transmission systems, the DG2040 offers deep pattern memory, sub-nanosecond edge control, and flexible sequencing capabilities.

SPECIFICATIONS

General

Interfaces	GPIO (IEEE-488.2), RS-232-C
Display	6.4-inch active-matrix color LCD, 640 × 480 resolution
Warm-up Time	20 minutes

Physical

Power Supply	90 V to 250 V AC, 48 Hz to 63 Hz, maximum 300 W
Operating Temperature	10 °C to 40 °C °C
Dimensions (W×H×D)	361 mm × 164 mm × 490 mm mm
Weight	10.5 kg kg

Output Channels & Signal Characteristics

Number of Data Channels	2
Maximum Data Rate	1.1 Gb/s
Minimum Data Rate	100 b/s
Maximum Output Amplitude	2.0 Vp-p (into 50 Ω)
Minimum Output Amplitude	0.1 Vp-p (into 50 Ω)
Offset Voltage Range	-1.625 V to +1.625 V
Voltage Resolution	10 mV
Output Impedance	50 Ω
Rise/Fall Time (20% to 80%)	≤ 150 ps (at 1 Vp-p)
Output Connector Type	SMA (front panel)
Complementary Outputs	Yes (CH1/CH1_bar, CH2/CH2_bar, CLK/CLK_bar)

Timing & Clock Specifications

Internal Clock Frequency Range	0.1 Hz to 1.1 GHz
Internal Clock Resolution	4 digits
Internal Clock Accuracy	±20 ppm
Clock Delay Range	-5.00 ns to +5.00 ns (CH2 relative to CH1)
Clock Delay Resolution	10 ps

Pattern Memory & Sequencing

Pattern Memory Depth per Channel	256 Kwords (262,144 bits)
Sequence Memory Depth	4000 steps
Maximum Loop Count	1 to 65,536 (or infinite)
Subroutine Nesting Levels	16 levels
Data Coding Format	NRZ

Trigger & Synchronization

Trigger Modes	Auto, Triggered, Gated
Trigger Sources	External, Internal, Manual
Trigger Input Threshold Range	-5.0 V to +5.0 V
Trigger Input Resolution	0.1 V
Trigger Input Impedance	1 k Ω

Software & Interface Operation

Onboard Storage Medium	3.5-inch 1.44 MB MS-DOS floppy drive
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Environmental & Compliance

Storage Temperature Range	-20 °C to +60 °C
Operating Humidity Range	20% to 80% RH (non-condensing)
Operating Altitude Limit	Up to 4,500 m (15,000 ft)

External Clock Input

External Clock Input Frequency Range	100 MHz to 1.1 GHz
External Clock Input Impedance	50 Ω
External Clock Input Amplitude	0.4 Vp-p to 2.0 Vp-p

Clock Output

Clock Output Amplitude	1.0 Vp-p (into 50 Ω)
Clock Output Connector	SMA

Trigger Output

Trigger Output Level	TTL (into 50 Ω)
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Trigger Input

Trigger Input Minimum Pulse Width	5 ns
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Sync Output

Event Output Level	TTL (into 50 Ω)
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Power Supply

Power Consumption	300 W maximum
Line Voltage Range	90 V AC to 250 V AC
Line Frequency Range	48 Hz to 63 Hz

Performance

Maximum Jitter	15 ps RMS (typical, at 1.1 Gb/s)
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Output Parameters

Channel-to-Channel Deskew Range (Option 01)	-1 ns to +1 ns
Channel-to-Channel Deskew Resolution (Option 01)	10 ps
Amplitude Accuracy	±(3% of setting + 50 mV) at 1 MHz into 50 Ω
Offset Accuracy	±(2% of setting + 50 mV) at 1 MHz into 50 Ω

Sequencer

Minimum Block Size	32 bits
Block Size Resolution	32 bits
Maximum Number of Blocks	256

Inputs & Outputs

Inhibit Input Connector	SMB
Inhibit Input Impedance	50 Ω
Inhibit Input Level	TTL compatible
Clock Output Impedance	50 Ω
10 MHz Reference Input Connector	BNC
10 MHz Reference Input Frequency	10 MHz (±0.05%)
10 MHz Reference Output Connector	BNC
10 MHz Reference Output Frequency	10 MHz

Connectivity

GPIB Interface	IEEE-488.2 compatible
RS-232 Interface	9-pin D-sub

Compliance

Safety Certifications	UL3111-1, CAN/CSA C22.2 No. 1010.1, EN61010-1
EMC Compliance	EN55011 Class A, EN50082-1

Environmental

Storage Altitude Limit	15,240 m (50,000 ft)
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TECHNOLOGY

Digital Pattern Generation

APPLICATIONS

High-speed digital circuit design, logic device characterization, and serial communications testing

