

TEKTRONIX

DG2020

The Tektronix DG2020 is a high-performance 200 Mb/s digital pattern generator designed for characterization, debugging, and testing of digital systems. Featuring a modular architecture supporting up to 36 channels with selectable output pods, the DG2020 provides flexible data rate controls, deep pattern memory, and extensive sequencing capabilities.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488.2), RS-232-C
Display	6.4-inch color TFT LCD
Warm-Up Time	20 minutes

Physical

Power Supply	90 to 250 V AC, 48 to 63 Hz, 300 W max
Operating Temperature	10 to 40 °C °C
Dimensions (W×H×D)	362 mm × 164 mm × 492 mm mm
Weight	10.5 kg

Output Channels & Signal Format

Number of Data Channels	Up to 36 channels (12 channels per pod, up to 3 pods)
Output Pod Options	P3410 (TTL), P3420 (ECL), P3447 (Variable Voltage)
Data Output Format	NRZ (Non-Return-to-Zero)
Output Impedance	50 Ω

Timing & Clocking

Maximum Data Rate	200 Mb/s
Clock Frequency Range	0.1 Hz to 200 MHz
Clock Frequency Resolution	4 digits
Internal Clock Accuracy	±100 ppm
Clock Source Options	Internal, External

Output Voltage Levels

P3447 High-Level Output Range	-2.0 V to +7.0 V
P3447 Low-Level Output Range	-3.0 V to +6.0 V
P3447 Voltage Amplitude Range	0.1 Vp-p to 9.0 Vp-p (into 50 Ω)
P3447 Voltage Level Resolution	10 mV

Pattern Memory & Sequencing

Pattern Memory Depth	64 K words per channel (64,000 words)
Block Size	8 words
Sequencer Loop Count Range	1 to 65,536 (or infinite)
Maximum Sequence Steps	4,000 steps
Maximum Subroutines	128

Trigger & Synchronization

Trigger Modes	Auto, Normal, Single
Trigger Sources	Internal, External, Manual
External Trigger Input Level	-5.0 V to +5.0 V
Sync Output Type	1 channel, TTL level

System Interfaces & Storage

Removable Storage Media	3.5-inch floppy disk drive (1.44 MB, MS-DOS format)
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Software & Control

Programming Language Compatibility	SCPI-compatible
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Environmental & Safety

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

Delay / Phase Control

Clock Delay Range	0 ns to 20.00 ns
Clock Delay Resolution	10 ps

External Clock Input

External Clock Input Frequency Range	DC to 200 MHz
External Clock Input Impedance	50 ohms
External Clock Input Amplitude	0.4 Vp-p to 5.0 Vp-p

P3410 Output Pod

P3410 Channel Count	12 channels
P3410 High-Level Output Voltage	≥ 4.4 V (into 1 Mohm), ≥ 2.2 V (into 50 ohms)
P3410 Low-Level Output Voltage	≤ 0.1 V (into 1 Mohm or 50 ohms)
P3410 Output Impedance	50 ohms
P3410 Rise/Fall Time	≤ 1.5 ns (into 1 Mohm, 10 pF)

P3420 Output Pod

P3420 Channel Count	12 channels
P3420 Voltage Level Range	-2.0 V to +7.0 V (into 1 Mohm)
P3420 Output Voltage Resolution	10 mV (into 1 Mohm)
P3420 Output Impedance	50 ohms
P3420 Voltage Amplitude Range	0.5 V to 9.0 V (into 1 MΩ)
P3420 Rise/Fall Time	≤ 1.5 ns (into 50 Ω, 1.0 V to 3.0 V swing)

Trigger Input

Trigger Input Impedance	1 Mohm
Minimum Trigger Pulse Width	10 ns

Power Requirements

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

Pattern Generation & Memory

Maximum Pattern Blocks	256
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Inputs & Outputs

Event Input Connector Type	BNC (rear panel)
Event Input Impedance	1 kΩ
Event Input Level	TTL compatible
Event Input Minimum Pulse Width	30 ns
Event Input to Sync Output Delay	≤ 60 ns + 1.5 clock cycles
Clock Output Connector Type	BNC (rear panel)
Clock Output Level	ECL level (into 50 Ω)

Compliance & Safety

Safety Standards	UL3111-1, CSA1010.1, EN61010-1
EMC Standards	EN55011, EN50082-1, FCC Part 15 Class A

TECHNOLOGY

Digital Pattern Generation

APPLICATIONS

Digital circuit characterization, semiconductor testing, and bus emulation

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