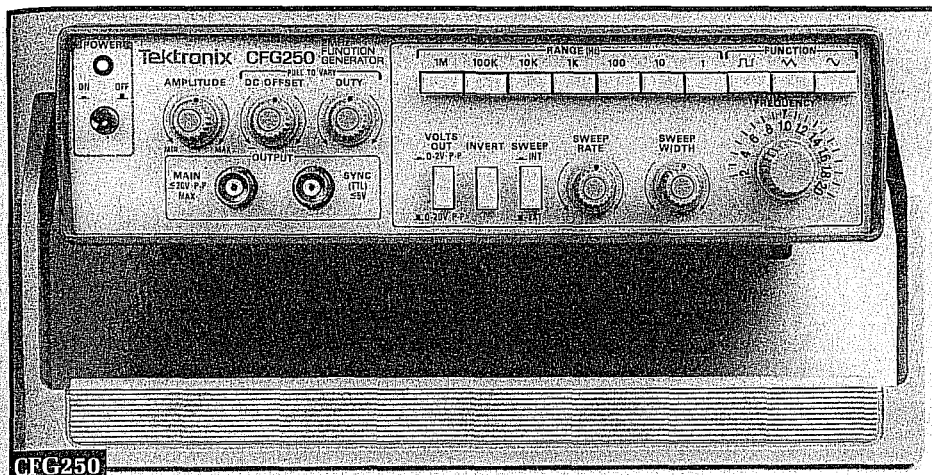


Function Generators

CFG250
CFG253
CFG280

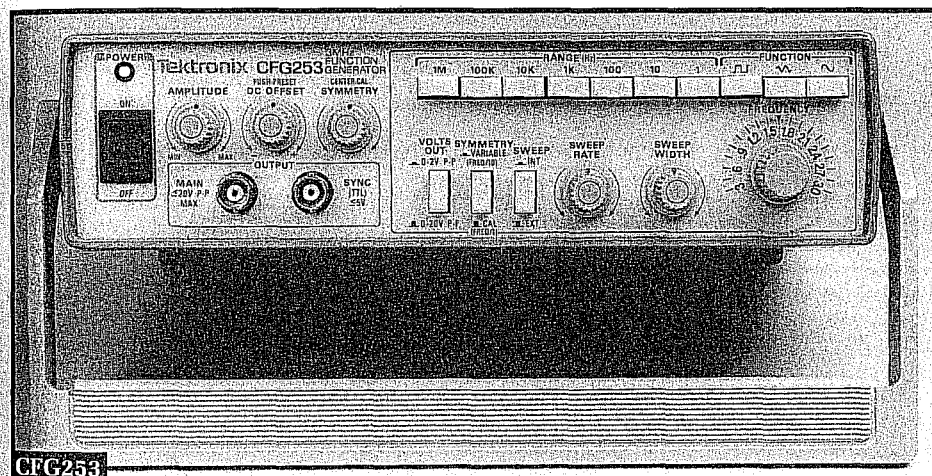
FUNCTION GENERATORS



CFG250

- 0.2 Hz to 2 MHz
- Square, Triangle and Sine Waves; TTL Output
- 20 dB Attenuator
- Internal or External Frequency Sweep
- Variable Duty Cycle
- One Year Warranty
- UL Listed, CSA Certified

*Function
Generators for
Testing and
Calibration of
Audio,
Ultrasonic, and
Servo Systems*



CFG253

- 0.03 Hz to 3 MHz Function Generator
- Square, Triangle, Sine Wave and TTL Output
- 20 dB Attenuator
- Variable Symmetry (20-80%)
- Internal or External Frequency Sweep

CFG280

- 0.01 Hz to 11 MHz (uncalibrated)
- 0.01 Hz to 11 MHz (calibrated)
- Square, Triangle, SineWave and TTL Output
- 20 dB Attenuator
- 1 Hz to 100 MHz Counter
- External Gate Input
- VCF (FM) Input
- AM 0-100% Input for External SineWave
- Internal or External Frequency Sweep
- Variable Symmetry 95/5 Fixed (Pulse and Ramp)

CFG250

The CFG250 2 MHz Function Generator produces sine, square, and triangle waves, and TTL signals for testing amplifiers, filters, and digital circuits. Its sweep function can be controlled internally or with an external signal level. Duty cycle, DC offset, sweep rate, sweep width and amplitude are all operator controlled.

CFG253 Function Generator

Applications for the CFG253 include testing and calibration of audio, ultrasonic, and servo systems. The CFG253 sweep function can be controlled internally or with an external DC level. Duty cycle, DC offset, sweep rate, sweep width and amplitude are user controllable.

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Electronics
Toll Free: 800-673-4102
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TD
Call Direct - Product available within 24 hours, (through TekDirect only). Call 1-800-426-2200. Also available through an Authorized Tektronix Distributor (listed on page 540).

To order, contact your local sales office (listed on the inside back cover) or call the National Marketing Center at 1-800-426-2200, Ext. 99.

STANDARD SPECIFICATIONS

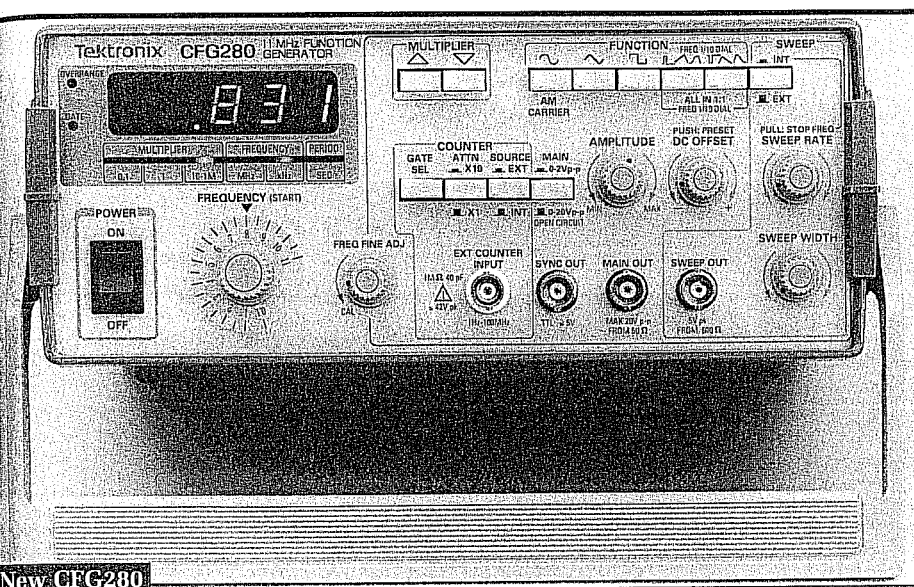
	CFG253	CFG250	CFG280
Waveform Outputs	Square wave, sine wave, triangle wave, TTL pulse, sweep functions for all outputs	Square wave, sine wave, triangle wave, TTL pulse, sweep functions for all outputs	Square wave, sine wave, triangle wave, TTL pulse, sweep functions for all outputs
Ranges	1.0 Hz to 1.0 MHz in 7 ranges; Low range extension with Freq/10 function (0.1 Hz to 100 kHz)	1.0 Hz to 1.0 MHz in 7 ranges	0.1 Hz (calibrated) to 11 MHz in 8 ranges
Frequency Multiplier	Variable from 0.3 to 3.0 times the selected frequency range	Variable from 0.2 to 2.0 times the selected frequency range	Variable from 0.1 to 1 (uncalibrated) 1 to 11 (calibrated)
Dial Accuracy	±5% of full scale	±5% of full scale	±5% of full scale from 0.1 Hz to 10 MHz
Sine Wave Distortion	<1% (10 Hz to 100 kHz)	<1% (10 Hz to 100 kHz)	<1% (10 Hz to 100 kHz) -30 dB at all other frequencies
Triangle Wave Linearity	20 Hz to 200 kHz: ≥99%; 200 kHz to 3 MHz: ≥97%	20 Hz to 200 kHz: ≥99%; 200 kHz to 2 MHz: ≥97%	0.1 Hz to 110 kHz: ≥99%; 110 kHz to 1 MHz: ≥97%; 1 MHz to 11 MHz: ≥95%
Square Wave Response	≤100 ns rise/fall time, maximum output into 50 Ω load	≤100 ns rise/fall time, maximum output into 50 Ω load	≤25 ns rise/fall time, maximum output into 50 Ω load
Main Output Amplitude	0-20 Vp-p: 100 mV to 20 Vp-p (open circuit), 50 mV to 10 Vp-p (50 Ω load); 0-0.2 Vp-p: 10 mV to 2 Vp-p (open circuit), 5 mV to 1 Vp-p (50 Ω load)	0-20 Vp-p: 100 mV to 20 Vp-p (open circuit), 50 mV to 10 Vp-p (50 Ω load); 0-0.2 Vp-p: 10 mV to 2 Vp-p (open circuit), 5 mV to 1 Vp-p (50 Ω load)	0-20 Vp-p: 200 mV to 20 Vp-p (open circuit); 100 mV to 10 Vp-p (50 Ω load); 0-0.2 Vp-p: 20 mV to 2 Vp-p (open circuit); 10 mV to 1 Vp-p (50 Ω load)
Attenuator	20 dB attenuator	20 dB attenuator	20 dB attenuator
SYNC/TTL Output	TTL output level, rise <25 ns (20 TTL load) ≥3 V peak	TTL output level, rise <25 ns (20 TTL load) ≥3 V peak	<25 ns rise/fall time, maximum output into 50 Ω load
Main Output Impedance	50 Ω ±10%	50 Ω ±10%	50 Ω ±10%
DC Offset	±10 V minimum open circuit; ±5 V minimum into 50 Ω load	±10 V minimum open circuit; ±5 V minimum into 50 Ω load	±10 V minimum open circuit; ±5 V minimum into 50 Ω load
Symmetry/Duty Cycle	5 to 1 minimum symmetry change	5 to 1 minimum symmetry change	95/5 fixed (pulse and ramp)
Internal Variable Sweep Rate	0.5 Hz to 50 Hz	0.5 Hz to 50 Hz	0.5 Hz to 50 Hz
Sweep Width	Variable from 1:1 to 100:1 with frequency dial set at maximum	Variable from 1:1 to 100:1 with frequency dial set at maximum	Variable from 1:1 to 100:1 with frequency dial set at maximum
External Voltage-Controlled	100:1 minimum for	100:1 minimum for	100:1 minimum for
Variable Sweep Range	0 to +10 VDC input with frequency control set at maximum	0 to +10 VDC input with frequency control set at maximum	0 to ±10 VDC input with frequency control set at 0.1 or 11
(10 kΩ input)			+2 V to 15 V (-1 KΩ impedance); Fixed 0° Start Phase
External Gate Input	—	—	1/10 dial frequency
Pulse and Ramp Frequency	—	—	±10 V input shifts frequency ≥100:1 up or down with dial set at 0.1 or 11 respectively
VCF (FM) Input	—	—	0 - 100%, DBSC, external sine wave only
AM	—	—	—
Counter Specifications			
Frequency Range (AC coupled)	—	—	1 Hz to 100 MHz
Sensitivity	—	—	30 mV rms from 1 Hz to 50 MHz; 50 mV rms from 50 MHz to 100 MHz; Selectable: 1X, 10X
Attenuation	—	—	1 Hz to 5 MHz 42 V peak, 5 MHz to 100 MHz 4.9 V peak
Max Input Voltage	—	—	1.0 MΩ, paralleled by ≤40 pF
Impedance	—	—	1 ms to 60 s/1 ms
Period Range/Resolution	—	—	—
Counter Time Base Stability			
Temperature Stability	—	—	±0.001% (±10 ppm) from 0° to 40°C
Line Voltage Stability of Oscillator	—	—	≤ ±1.0 ppm with 10% line voltage variation
Aging Rate	—	—	≤ ±10 ppm/yr
Crystal Frequency	—	—	10 MHz
Counter Accuracy			
Frequency	—	—	±(time base error + 1 count)
Period	—	—	±(time base error + 1 count + trigger error)
Power Requirements			
Range			
Line Voltage	90 to 110 VAC, 108 to 132 VAC 198 to 242 VAC, 216 to 250 VAC	90 to 110 VAC, 108 to 132 VAC 198 to 242 VAC, 216 to 250 VAC	90 to 110 VAC, 108 to 132 VAC 198 to 242 VAC, 216 to 250 VAC
Line Frequency	50 to 60 Hz	50 to 60 Hz	50 to 60 Hz
Maximum Power Consumption	21 VA, 18 W	20 VA, 17 W	50 VA, 42 W
Safety	UL Listed, CSA Certified	UL Listed, CSA Certified	ETL
Physical Characteristics			
Size (W x H x D)	240 mm x 64 mm x 190 mm 9.46 in. x 2.53 in. x 7.49 in.	240 mm x 64 mm x 190 mm 9.46 in. x 2.53 in. x 7.49 in.	240 mm x 1090 mm x 190 mm 9.46 in. x 3.9 in. x 7.49 in.
Weight	1.7 kg (3.7 lb)	1.7 kg (3.7 lb)	2.7 kg (5.9 lb.)

Function Generators

CFG250

CFG253

CFG280



New CFG280

CFG280 11 MHz Function Generator With Counter

The CFG280 combines an 11 MHz Function Generator, which produces sine, square, and triangle waves, plus TTL signals, with a 100 MHz Frequency Counter. The onboard counter allows the operator to set the frequency output of the function generator precisely. This versatile instrument conserves both benchtop and budget by combining the two capabilities.

Applications include manufacturing testing of electronic products and the repair and calibration of audio equipment, servomechanisms, and amplifiers.

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ORDERING INFORMATION

CFG250

2 MHz Function Generator **\$365**
Includes: Operator's Manual (070-6738-00); US power cord (standard) and one year warranty.

CFG253

3 MHz Function Generator **\$415**
Includes: Operator's Manual (070-8362-00); US Power Cord (standard) and one year warranty.

CFG280

Function Generator w/counter **\$995**
Includes: Instruction Manual (070-8559-00); US power cord (standard) and one year warranty.

INTERNATIONAL POWER PLUG OPTIONS

Opt. A1 - Universal Euro, 220 V/50 Hz **NC**
Opt. A2 - UK, 240 V/50 Hz **NC**
Opt. A3 - Australia, 240 V/50 Hz **NC**
Opt. A4 - North American, 240 V/60 Hz **NC**
Opt. A5 - Switzerland, 220 V/50 Hz **NC**

WARRANTY-PLUS SERVICE OPTIONS

Opt. M7 - Calibration Service
CFG 250 **+\$58**
CFG 253 **+\$60**
CFG 280 **+\$120**

Opt. M9 - Repair Protection

CFG 250 **+\$66**
CFG 253 **+\$65**
CFG 280 **+\$80**

OPTIONAL ACCESSORIES

BNC Cables, Probes, etc. See page 407 for full line of accessories

Call Direct - Product available within 24 hours, (through TekDirect only).
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Also available through an Authorized Tektronix Distributor (listed on page 540).

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