

Description

The FG601 Function Generator is part of our comprehensive 600 Series of inexpensive test instruments. It is a general-purpose function generator having most of the features commonly required in the testing of electronic systems. It has pushbutton-selected sine, square and triangle waveforms, together with a TTL-compatible square wave (5V) and an auxiliary triangle output (2V pk-pk).

The FG601 provides the user with a wide frequency range (0.001Hz - 1MHz), an output of 20V pk-pk, pushbutton attenuation, and DC offset control.

An additional facility of this Function Generator is the provision for voltage controlled linear sweep of the frequency (VCF), enabling it to be used in automatic frequency response testing.

Combined, these functions make the FG601 Function Generator suitable for use in the more exacting applications of dynamic systems testing.

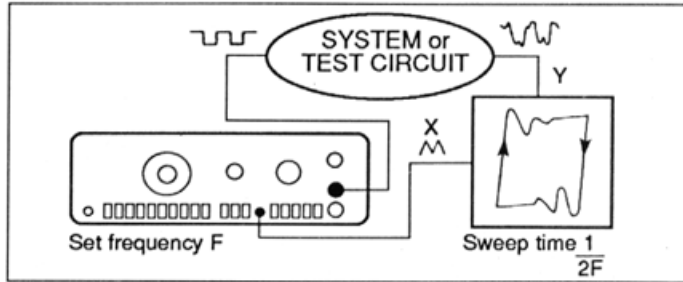
Applications of the FG601 include transient response testing, frequency response/phase shift measurement, measurement of following error, automatic frequency response testing, and any application normally employing a sine/square oscillator. The FG601 can be used in low frequency studies, medical research, geophysical investigations and in structural testing.

Prior to despatch each instrument is performance tested for a minimum of twenty-four hours, calibrated, and finally checked to ensure maximum accuracy and reliability. This is supported by a 2-year guarantee.

Features

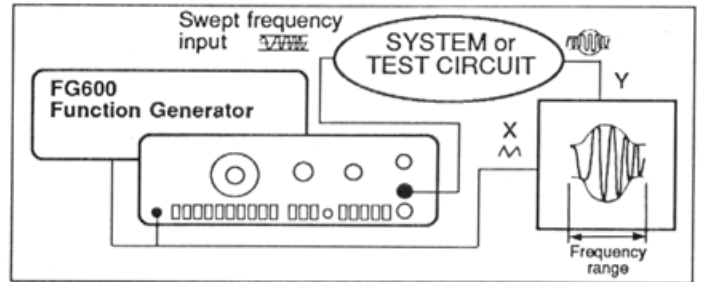
- Sine, square and triangle waveform
- Frequency range 0.001Hz to 1MHz
- Pushbutton selection of frequency
- Main output of 20V pk-pk, 600Ω
- Switched and variable attenuation
- TTL-compatible output
- Continuous availability of triangle output at 2V
- Voltage control of frequency (VCF)
- Ergonomic case design
- Operates from 200-250V or 100-125V

Specification



Example 1 - Transient response testing

Typical set-up for transient response testing using the Feedback Function Generator FG601 with oscilloscope or XY plotter.



Example 2 - Automatic frequency response

Typical set-up for automatic frequency response using the Feedback Function Generator FG601 with oscilloscope and FG600 to sweep frequencies.

Frequency

The frequency range of the FG601 is 0.001Hz to 1.0MHz in nine pushbutton decade ranges; with a continuously variable fine control having generous range overlap. There is also provision for a voltage controlled linear sweep of frequency. If +1.0V is applied to the VCF input socket, it effectively increases frequency set on the dial by one major scale division.

Range: 0.001Hz to 1.0MHz in nine pushbutton selected ranges.

Range overlap:

- Typically
 - i 20% of maximum reading above top of scale.
 - ii 90% of minimum reading below bottom of scale.

Scale Accuracy: ±5% of full scale (typically ±2% of indication from 1 to 10 on dial scale).

Stability: Measured at 10kHz on 1 to 10kHz range:

- i Drift typically 0.03% per 10 min, measured after 10 min warm up.
- ii Frequency change typically 0.003% for 10% change in supply voltage.

Main output

Waveforms: Sine, square and triangle, pushbutton-selected.

Source impedance: 600Ω.

Amplitude: 20V pk-pk maximum open circuit.

Amplitude control: Single continuous control calibrated 0-20V pk-pk at 2V intervals.

Stepped attenuator: Five-pushbutton selection x1.0, x0.1, x0.01, x0.001 and x0.

Attenuation accuracy: at 1.0kHz, x0.1 ±2%, x0.01 ±4%, x0.001 ±6%.

Amplitude stability:

Sine and square waveforms, typically < ±0.5% pk-pk change from 0.01Hz to 100kHz.

Triangular waveform, typically < ±0.5% pk-pk from 0.01Hz to 10kHz, and -2.5% at 100kHz.

Variation in voltage with temperature typically < 30 x 10⁻⁶ deg C⁻¹ at 1kHz, on 100Hz to 1kHz on the sinewave range.

Offset: DC offset control coupled with push/pull switch to disconnect offset. Magnitude from +10V nominal, continuously adjustable through 0V to -10V nominal, on x 1.0 attenuation setting. DC offset is unaffected by adjustment of main output continuous amplitude control but is attenuated together with the signal by the stepped attenuator.

Terminations: 4mm binding posts (Hi-red and Lo-black on 0.75in pitch).

Purity: *Sine distortion:* < 0.6% at 1kHz on 100Hz to 1kHz range. *Square wave rise and fall time:* Typically < 100ns at 1kHz. *Triangular wave linearity:* Typically < 1.0% at 1kHz.

Jitter: Typically 20ppm average cycle period difference from mean value measured at 1Hz.

Auxiliary outputs

Triangle: Amplitude: 2V pk-pk. Source impedance: 600Ω. Termination: 4mm socket.

TTL Square: Amplitude: TTL compatible (nominal 0-5V). Rise time: O/C or 50Ω load < 10ns. Sink capacity: 20 standard TTL loads. Termination: BNC socket.

VCF

Control Characteristic: Linear.

Sensitivity: +1.0V applied to VCF socket increases frequency set on dial effectively by one major scale division.

Sweep range: Two decades.

Slew rate: 0.2V/μs referred to input. **Input impedance:** 10kΩ. **Termination:** 4mm socket.

Power requirements

Line voltage: 200/250V or 100/125V, 50 or 60Hz. **Consumption:** 16VA. **Fuse:** 315mA slow blow (20 x 5mm).

Dimensions & Weight

Width: 330mm (13in) **Height:** 118mm (4.6in) **Depth:** 226mm (8.9in) **Weight:** 2.2kg (4.8lb).

Tender specification

Function Generator, 0.001Hz to 1MHz. Adjustable output 0-20V pk-pk, sine, square and triangle waveforms. Switched attenuator. Variable d.c offset up to ±10V. Auxiliary triangle and TTL-compatible squarewave outputs. External VCF provision.

Ordering information

Order: 'Function Generator

FG601'

For further information on these & other equipments in the Test & Measurement range contact.....



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