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# 15MHz Programmable Function Generator



## FEATURES

* Frequency Range 0.01Hz~15MHz
* Maximum Frequency Resolution 10mHz
* Frequency Accuracy 0.02%± 5 Count
* Dual Displays Indicate Frequency and Amplitude
* Built-in 6 Digit Counter With INT/EXT Function up to 150MHz/High Resolution
* Output Waveforms Sine, Square, Triangle, Ramp, Pulse, AM, FM, Sweep, TTL, Trigger and Gate or Burst
* INT/EXT AM/FM Modulation
* LIN/LOG Sweep Mode
* Variable DC Offset Control
* VCF for 100:1 EXT Frequency Control
* GCV Output for Synchronization
* SYNC Output
* Output Overload Protection
* RS-232C Interface Standard

## GFG-3015

## SPECIFICATIONS

**MAIN**

| | |
|---|---|
| Output Waveforms | Sine, Square, Triangle, Ramp, Pulse, AM, FM, Sweep, Trigger, Gate or Burst |
| Frequency Range | 10mHz~15MHz in 8 frequency range(auto switch) |
| Frequency Resolution | 15MHz~150kHz(100Hz);1.5MHz~15kHz(10Hz)<br>150kHz~1.5kHz(1Hz);15kHz~150Hz(0.1Hz)<br>1.5kHz~15Hz(10mHz);150Hz~1.5Hz(10mHz)<br>15Hz~0.15Hz(10mHz);1.5Hz~0.01Hz(10mHz) |
| Frequency Accuracy | 0.02% ±5 count |
| Output Impedance | 50Ω ±10% |
| Amplitude Range | 10.00V ~ 0.01V(into 50Ω ) 4 amplitude rang<br>\|Vac peak\| + \|Vdc\| = 5V<br>Resolution : 10mV(10.00V ~ 0.01V) |
| Amplitude Accuracy | ≤ 3% ± 5count at 10Hz ~ 1MHz<br>≤10% ± 5count at 1MHz ~ 15MHz |
| Amplitude Unit | Vpp , Vrms , dBm |
| DC Offset | -5V ~ 5V (into 50Ω); resolution 10mV |
| DC Offset Accuracy | ≤ 3%±3count at amplitude min. |
| Duty Control | 80%: 20%:80% ~ 1MHz; resolution 1% |
| Duty Accuracy | ≤ 1% ~ 1MHz at 50% duty |
| Display | Dual display for frequency 6 digits and amplitude 4 digits |

**SINE WAVE**

| | |
|---|---|
| Distortion | ≤ 0.5%(-46dBc) THE from 10Hz~ 100kHz;<br>≤ -30dBc~15MHz;(spec. applied form 1Vpp~10Vpp) |

**TRIANGLE WAVE**

| | |
|---|---|
| Linearity Error | <1% of full scale output at 100Hz |

**SQUARE WAVE**

| | |
|---|---|
| Asymmetry | ± 1% of period + 3nS |
| Rise or Fail Time | <18 nS |

**SYNC OUTPUT**

| | |
|---|---|
| Impedance | 50Ω ± 10% |
| Level | >1Vp-p open circuit |

**MODULATION CHARACTERISTICS**

| | |
|---|---|
| Types | AM, FM, Sweep, Trigger(int/ext), Gate or Burst (implement by trigger type) |
| Waveform | Sine, Square, Triangle, Ramp or Variable Symmetry Pulse |
| Rate Frequency Range | 10mHz~10kHz in 3 frequency range (auto switch) |
| Rate Frequency Accuracy | 5% ± 1 count |
| Rate Frequency Resolution | 10.0kHz~0.1kHz(100Hz);99Hz~1Hz(1Hz);<br>0.99Hz ~ 0.01Hz(0.01Hz) |
| Symmetry | 90% : 10% : 90%; resolution : 1% |
| Symmetry Accuracy | ± 1 count(≤ ± 1%) |
| Output Level | ≥1Vpp into 10kΩ load |
| Sine Wave Distortion | ≤ 2% from 10Hz ~ 10kHz |

**AMPLITUDE MODULATION**

| | |
|---|---|
| Depth | 0 ~ 100% |
| Modulation Frequency Rate | 0.01Hz ~ 10kHz(INT) ; DC ~ 1MHz(EXT) |
| Carries -3dB Bandwidth | <100Hz to >5MHz |
| External Sensitivity | ≤ 10Vpp for 100% modulation |

**FREQUENCY MODULATION**

| | |
|---|---|
| Deviation | 0 ~ ± 15% |
| Modulation Frequency Rate | 0.01Hz ~ 10kHz(INT) ; DC ~ 50kHz(EXT) |
| External Sensitivity | ≤ 5Vpp for 15% deviation |

**SWEEP CHARACTERISTICS**

| | |
|---|---|
| Sweep Range | 15MHz ~ 150kHz; 1.5MHz ~ 15kHz;<br>150kHz ~ 1.5kHz; 15kHz ~ 150Hz;<br>1.5kHz ~ 15Hz; 150Hz ~ 1.5Hz;<br>15Hz ~ 0.15Hz; 1.5Hz ~ 0.01Hz |
| Width | >100:1(in same frequency range) |
| Rate | 0.01Hz ~ 10kHz |
| Symmetry Control | 90% 10% 90% ; resolution:1% |
| Mode | Linear /Log sweep |
| Sweep Output | 0 ≥ -5Vpp into 10kΩ |

**TRIGGER CHARACTERISTICS**

| | |
|---|---|
| Start/Stop Phase Range | 80° ~ 90° |
| Rate | 0.1Hz ~ 10kHz |
| Frequency Range | 0.1Hz ~ 1MHz(Useful ~ 10MHz) |
| Ext Trig Frequency Range | DC ~ 1MHz, TTL compatible input level |
| Gate or Burst | Implement by trigger setting |

**VCF**

| | |
|---|---|
| Range | 100:1(0 ~ 10V ± 1V) |
| Input Linearity | <0.5% ~ 1MHz,<5% ~ 10MHz |
| Input Impedance | 10 kΩ |

**GCV OUTPUT**

To set the voltage between 0.2V ~ 2V as per different frequency in same frequency range

**FREQUENCY COUNTER**

| | |
|---|---|
| INT/EXT | Switch selector |
| Range | 5Hz ~ 150MHz EXT |
| Accuracy | Time base accuracy ± 1 count |
| Time Base | ± 20ppm(23°C ± 5°C) after 30 minutes warm up |
| Resolution | The maximum resolution is 100nHz for 0.1Hz and 1Hz for 100MHz |
| Input Impedance | 1MΩ // 150pF |
| Sensitivity | ≤ 35mVrms(5 ~ 100MHz);<br>≤ 45mVrms(100MHz~150MHz) |

**MEMORY**

| | |
|---|---|
| Save/Recall | 10 sets of front panel setting memories |

| | |
|---|---|
| **INTERFACE** | RS-232C |
| **POWER SOURCE** | AC115V/230V ±15%, 50/60Hz |
| **ACCESSORIES** | Instruction manual x 1, Power cord x 1, GTL-101 x 2 |
| **DIMENSIONS & WEIGHT** | 290(W) x142(H) x 460(D)mm, Approx. 5kg |

## ORDERING INFORMATION

**GFG-3015** 15MHz Programmable Function Generator

Note : ① VCF : Voltage Controlled Frequency
② GCV : Generator Controlled Voltage

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