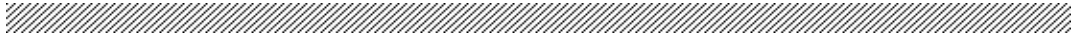


SG1638N

FUNCTION GENERATOR/COUNTER



OPERATOR'S MANUAL

INTRODUCTION

Thank you for buying SG1638N series function generator/counter.

Please read this manual carefully before operation and keep it well.

Suggest to use an oscilloscope to watch the waveform when operation.

Please select the real input voltage by the voltage selector

Instrument's AC power supply should have safe GND.

Changing fuse should be fit for given request.

Each output, input port should not contact AC power supply.

Each output, input port should not contact over $\pm 35\text{V}$ AC or DC power.

Output port should try to avoid long-time short circuit. ($\leq 1\text{min}$)

In order to ensure instrument's accuracy, please avoid strong magnetolectricity.

1. Specifications:

1.1 Main output:

Model	SG1638N
Output frequency	0.2Hz~2MHz
Frequency step	six-step, decimalism
Frequency adjustment ratio	Rate: 0.1~1 Range: 0.2~2
Output waves	sine、square、triangle、pulse、ramp、and 50Hz sine
Output impedance	$50\ \Omega \pm 10\%$
Output signal type	single、VCF
VCF	0~10V
Output amplitude	20Vp-p (1M Ω) 10Vp-p (50 Ω)
Output protection	short circuit, resist input voltage: $\pm 35\text{V}$ (1min)
Distortion of sine waves	$\leq 100\text{k}$ 2%
Duty adjustment	20%~80%
DC offset	$\pm 10\text{V}$ (1M Ω) $\pm 5\text{V}$ (50 Ω)
Rising time of square wave	100ns 5Vp-p 1MHz
Attenuation accuracy	$\leq \pm 3\%$
Effect of duty on frequency	$\pm 10\%$

1.2 TTL out

Model	SG1638N
Output amplitude	“0”: $\leq 0.6\text{V}$; “1”: $\geq 2.8\text{V}$ 600 Ω

1.3 Frequency counter:

Model	SG1638N
Measurement accuracy	6digits±1% ±1 word
Resolution	1Hz
frequency range	1Hz~15MHz (200mV)

1.4 Power:

- Voltage: 220±10%V /110±10%V (Switchable) Frequency: 50±2Hz/60±2Hz
- Visual power: 10VA prox.; Fuse: 0.5A

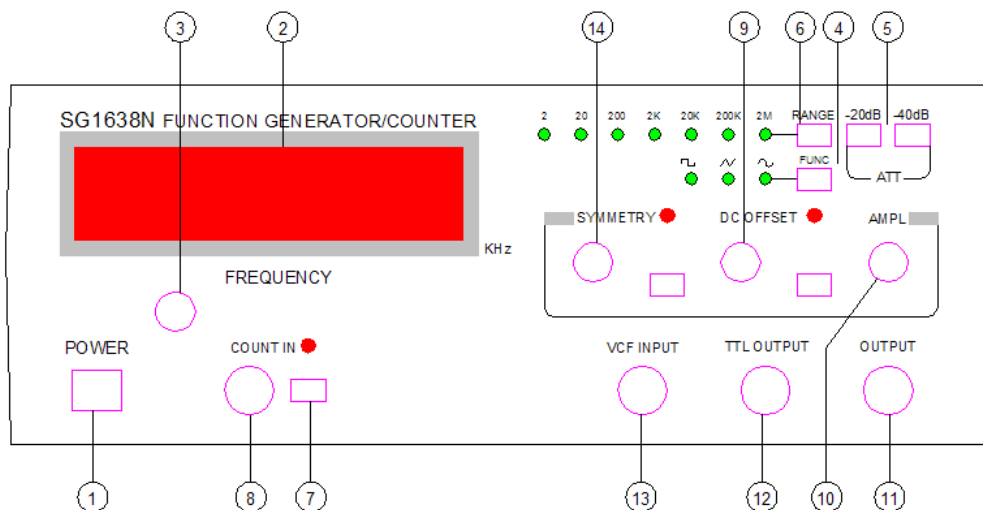
1.5 Physical characteristics:

- Weight: Appro. 3kg Dimensions: 210(W)×80(H)×230(D)(mm)

1.6 Environment conditions:

- Working temperature: 0~40° C Storage temperature: -40~60° C
- Max working humidity: 90%(40° C) Max storage humidity: 90%(50° C)
- Other demands: continually vibrate and impact should be avoided. No acid、alkali、 and hydrochloric air

2. Panel operation Summary:



SG1638N Function Generator Front Panel

- (1) Power: spring out means “off”. Connect the power line. Push down the knob and power is on.
- (2) LED window: this window indicates the frequency of output signal, when “EXT” is on, it displays frequency of external signal. If over the measurement range, the light “overflow” is on.
- (3) Frequency: adjust this rotary to change output frequency signal, the frequency will be big while turn it clockwise.
- (4) Wave form: choose the wave you need if you press the correspondence key.
- (5) ATTE: The voltage output attenuate switch, two-switch combination is 20db, 40db, 60db.
- (6) Frequency range selector: (frequency counter gate switch): Press one key according the needed frequency.
- (7) Counter/Frequency terminal: Counter, EXT frequency input terminal.

- (8) EXT frequency switch: Press this switch, LED window will display EXT signal frequency or counter value.
- (9) Level adjustment: Press level adjustment switch, the light “level” is on, then adjusting level adjustment rotary can change DC level offset.
- (10) Amplitude: The voltage output amplitude will be big while turning it clockwise, and the value will be small while turning it counterclockwise.
- (11) Voltage out: voltage is out via this terminal.
- (12) TTL out: TTL is out via this terminal.
- (13) VCF: Voltage controlling frequency change input is via this terminal.
- (14) SYMMETRY: sym switch, duty adjustable rotary, press duty switch, the light “SYM” is on; adjusting duty rotary can change the duty of wave.

3. BASIC OPERATION METHODS:

Before power is on, fist check the input voltage, insert the power line into the AC socket in the rear panel. Set each controlling knob as the following table:

POWER Knob	Spring out
ATTE Knob	Spring out
COUNTER Knob	Spring out
LEVEL Knob	Spring out
DUTY Knob	Spring out

After that, turn on the switch. The function signal generator acquiesce 10k sine wave, LED window display it’s out signal frequency.

5.1 Deliver the voltage out signal to oscilloscope Y input terminal via amplitude terminal.

5.2 Triangle、 square、 sine wave form:

5.2.1 Press sine、 square、 triangle wave, the screen of oscilloscope will display sine、 square、 and triangle.

5.2.2 Press frequency range selector and rotate the frequency rotation, the waveform on the oscilloscope’s screen and frequency on LED window will change evidently.

5.2.3 Turn the amplitude rotary to maximum, the wave amplitude on the oscilloscope’s screen will be $\geq 20V_{p-p}$

5.2.4 Press “LEVEL”, turn the “level” rotary to max, wave on oscilloscope will move upside, and vise visa. The max change should be $\pm 10V$ or more. NOTICE: when signal is over $\pm 10V$ or $\pm 5V (50 \Omega)$, the amplitude is limited.

5.2.5 Press “ATTE”, the out waveform will be attenuated.

4. INSTRUMENT ACCESSORIES:

The standard accessories are as following:

- (1) Function Signal Generator 1 set
- (2) Connect cable 1 piece
- (3) Operation manual 1 copy
- (4) Fuse 1 piece
- (5) Power cord 1 piece