



# GF-856C GF-858C

## 30 MHz FUNCTION GENERATORS ONE OR TWO OUTPUT CHANNELS, 125 MSa/s

**INCLUDES THE MOST COMMON WAVEFORMS**  
SINE, SQUARE, RAMP (SAW WAVE), PULSE, NOISE

**LOW DISTORTION DDS SYNTHESIS**

**14 BITS VERTICAL RESOLUTION**

**16 MODULATIONS**  
INCLUDING FM, AM, PM, FSK, ASK, PWM...

**ON-SCREEN GRAPHICAL READINGS**  
FREQUENCY METER AND PERIOD COUNTER

**UP TO 160 ARBITRARY WAVEFORMS**

**DUAL OR SINGLE CHANNEL**

**COMPATIBLE WITH LabVIEW**

**GENERATE USER-DEFINED WAVEFORMS  
WITH PC SOFTWARE**



The **GF-856C** and **GF-858C** are advanced single channel or dual channel waveform generators, respectively, using DDS technology, with a 30 MHz output frequency and a 125 MSa/s sample rate with 14-bit resolution. These excellent features are complemented by a 1 $\mu$ Hz base resolution.

Capable of generating signals in **16 modulation schemes** (including FM, AM, PM, FSK, ASK, PWM), they also feature a 100 mHz to 100 MHz digital graphical frequency counter with a 6-digit resolution.

Beyond standard waveforms (sine, square, pulse, sawtooth, noise), these instruments allow users to create **custom waveforms** and access a library of 160 waveforms preloaded in the instrument's memory.

The **GF-856C** and **GF-858C** generators feature external modulation inputs, a sync output, and an external trigger input.

### GENERAL FEATURES

- Number of channels: 1 (GF-856C) or 2 (GF-858C)
- Output frequency: 30 MHz
- Sampling rate: 125 MSa/s
- Vertical resolution: 14 bits
- Standard waveforms: Sine, Square, Pulse, Sawtooth (ramp), Noise
- Custom waveforms: User defined waveform, Exponential rise, Exponential decline, sin(x)/x, Pulse wave... A total of 160 waveforms.
- Frequency resolution: 1  $\mu$ Hz to 30 MHz (Sine wave), 1  $\mu$ Hz to 15 MHz (Square/Pulse), 1  $\mu$ Hz to 1 MHz (Sawtooth), 20 MHz (Noise), 1  $\mu$ Hz to 10 MHz (Custom waveform)
- Modulations: FM, AM, PM, FSK, ASK, PWM, 3FSK, 4FSK, PSK, BPSK, OSK, DSB-AM, QPSK, SUM, Sweep, Burst
- Frequency counter: Frequency and period counter, margin from 100 mHz to 100 MHz
- Screen: Color 3.6" TFT, 480x272 pixels
- Interfaces: External modulation input, External trigger input, Sync output
- Communication interfaces: USB Host, USB device (supports remote control from PC)
- SCPI and LabVIEW support

COMPATIBLE



LabVIEW

SPECIFICATIONS	GF-856C / GF-858C	MODULATIONS	AM, DSB-AM, FM, PM, ASK, FSK, PSK, BPSK, QPSK, 3FSK, 4FSK, OSK, PWM, SUM
<b>OUTPUT</b> <b>Channels</b> Bandwidth Sampling rate Vertical resolution Standard waveforms Custom waveforms	<b>1 (GF-856C) / 2 (GF-858C)</b> 30 MHz 125 MS/s 14 bits Sine, Square, Ramp, Pulse, Noise More than 160, including Sinc, Exponential rise and decline, Electrocardiogram, Gaussian, Lorentz Semi-positive, Dual audio, DC voltage	<b>SWEEP</b> Carrier  Start frequency End frequency Types Sweep time Trigger source	Sine wave, Square, Ramp, Custom (except DC) From 1 $\mu$ Hz to max freq. carrier From 1 $\mu$ Hz to max freq. carrier Linear, Logarithmic 1 ms to 500 s $\pm$ 0.1% Internal, External or Manual
		<b>OUTPUT FREQUENCY (1 <math>\mu</math>Hz resolution)</b> Sine wave Square / Pulse wave Ramp Noise (-3 dB) Custom waveform Resolution Stability	1 $\mu$ Hz ~ 30 MHz 1 $\mu$ Hz ~ 15 MHz 1 $\mu$ Hz ~ 1 MHz 20 MHz BW (AWGN) 1 $\mu$ Hz - 10 MHz 1 $\mu$ Hz or 7 digits $\pm$ 30 ppm (at $\pm$ 40°C)
<b>AMPLITUDE</b> Output amplitude  Accuracy  Resolution Output impedance	2 mV <sub>PP</sub> ~ 20 V <sub>PP</sub> ( $\leq$ 10 MHz) High Z 2 mV <sub>PP</sub> ~ 10 V <sub>PP</sub> ( $\leq$ 30 MHz) High Z 1 mV <sub>PP</sub> ~ 10 V <sub>PP</sub> ( $\leq$ 10 MHz) 50 $\Omega$ 1 mV <sub>PP</sub> ~ 5 V <sub>PP</sub> ( $\leq$ 30 MHz) 50 $\Omega$ $\pm$ (1% reading + 1 mV <sub>PP</sub> ) (typ. sine 1 kHz, offset 0 V) 1 mV <sub>PP</sub> or 4 digits 50 $\Omega$ typ	<b>FREQUENCY COUNTER</b> Measurements Frequency margin Frequency resolution Input impedance	Frequency, Period Single channel: 100 mHz - 200 MHz 6 digits 1 M $\Omega$
		<b>WAVEFORMS</b> <b>Sine</b> Flatness Armonic distortion  Noise phase  <b>Square</b> Rise/fall time Jitter (rms) Overshoot  <b>Ramp</b> Linearity  Symmetry  <b>Pulse</b> Period Pulse width Rise/fall time Overshoot Jitter (rms)  <b>Ruido</b> Types Bandwidth  <b>Custom waveform</b> Bandwidth Waveform length Sampling rate Amplitude accuracy	$\pm$ 0.3 dB ( $\leq$ 10 MHz) / $\pm$ 0.5 dB ( $\leq$ 30 MHz) 0 dBm (typ.), < -65 dBc (DC@1 MHz) < -60 dBc (1 MHz to 30 MHz) 0 dBm, 10 kHz offset (typ) -110 dBc/Hz (10 MHz)  <20 ns 200 ps + 30 ppm (typ., 1 V <sub>PP</sub> , 50 $\Omega$ ) <5 %  <1 % of peak output (typ. 1 kHz, 1 V <sub>PP</sub> , symmetry 50%) From 0% to 100%  67 ns to 1 Ms $\geq$ 24 ns $\geq$ 15 ns <5 % 200 ps + 30 ppm (typ., 1V <sub>PP</sub> , 50 $\Omega$ )  Gaussian noise and White noise 20 M (-3 dB)  10M From 2 to 100 Kpoints 125 Ma/s 14 bits
		<b>GENERAL SPECIFICATIONS</b> Screen Supply Fuse protection Calibration	16-bit color TFT-LCD 3.6" (480x272 pixels) 100-240 V <sub>AC</sub> , 50/60 Hz CAT II (<20 W) 250 V, tipo F1AL Annual calibration is recommended
		<b>OPERATING ENVIRONMENTAL CONDITIONS</b> Operation temperature Storage temperature Relative humidity Operation altitude Storage altitude	From 0 to 40 °C From -20 to 60 °C $\leq$ 90 % (<25 °C), $\leq$ 60% (35 to 40 °C) 3000 m 12000 m
		<b>MECHANICAL FEATURES</b> Dimensions Weight	200 (W.) $\times$ 92 (H.) $\times$ 145 (D.) mm 800 gr (aprox.)

DESIGN AND SPECIFICATIONS ARE SUBJECT TO CHANGES WITHOUT PRIOR NOTICE. 11/24