

## Function/Arbitrary Waveform Generator SPGF-12

### Application

Telecommunication  
 Test & measurement equipment  
 Research facilities



Function/Arbitrary Waveform Generator SPGF-12 is designed for generating signals of different waveform: sine, square, ramp, triangular, arbitrary. Operation of the generator is based on direct digital synthesis using a 14-bit DAC.

### Main features

Frequency	
Range	0.01 Hz ... 12.5 MHz
Resolution	0.005 Hz
Temperature stability	$5 \times 10^{-7} / ^\circ\text{C}$
Aging	$2 \times 10^{-6} / \text{year}$
Waveform	
<i>Sine</i>	
Frequency range	0.01 Hz ... 12.5 MHz
Amplitude (at load 1 MOhm )	20 mV ... 20 V
Harmonics (at amplitude 1 V): $f < 500 \text{ kHz}$ $500 \text{ kHz} \leq f \leq 5 \text{ MHz}$ $5 \text{ MHz} \leq f \leq 12.5 \text{ MHz}$	-65 dBc -50 dBc -40 dBc
Spurs (at amplitude 1 V): $f < 500 \text{ kHz}$ $500 \text{ kHz} \leq f \leq 5 \text{ MHz}$	-65 dBc -65 dBc + 6 dBc/oct
<i>Meander</i>	
Frequency range	0.01 Hz ... 12.5 MHz
Amplitude (at load 1 MOhm )	20 mV ... 20 V
Rise/fall time	< 10 ns
Front surge	< 5%
Duty ratio	$(50 \pm 5) \%$

<i>Square</i>	
Frequency range	0.01 Hz ... 5 MHz
Amplitude (at load 1 MOhm )	20 mV ... 20 V
Rise/fall time	< 10 ns
On-time	100 ns ... 80 s
Max duty ratio	90%
<i>Ramp</i>	
Frequency range	0.01 Hz ... 25 kHz
Amplitude (at load 1 MOhm )	20 mV ... 20 V
Non-linearity	< 1 %
<i>Triangular</i>	
Frequency range	0.01 Hz ... 250 kHz
Amplitude (at load 1 MOhm )	20 mV ... 20 V
Non-linearity	< 1%
<i>Arbitrary</i>	
Frequency range	0.01 Hz ... 250 kHz
Amplitude (at load 1 MOhm )	20 mV ... 20 V
Max sample rate	100 MHz
DAC resolution	14 bits
<b>Input</b>	
<i>Enable/Trigger</i>	
Connector	BNC
Impedance	5 kOhm    100 pF
Input voltage	0 / +5 V
<i>External modulation</i>	
Connector	BNC
Impedance	10 kOhm
Input voltage	± 20 V
<b>Outputs</b>	
<i>RF</i>	
Connector	BNC
Impedance	50 Ohm
Output voltage (at load 1 MOhm )	
Band 1	2.1 ... 20 V
Band 2	0.21 ... 2 V
Band 3	20 ... 200 mV

Amplitude accuracy	
Band 1	± 2%
Band 2	± 3%
Band 3	± 4%
Max offset	± 50 mV
<i>Trigger</i>	
Connector	BNC
Impedance	50 Ohm
Output voltage	0 / +5 V, TTL
<i>Modulation</i>	
Connector	BNC
Impedance	1 kOhm
Output voltage	0 ... +5 V, proportional to frequency
<b>Offset adjustment (at load 1 MOhm)</b>	
Band 1	-7.5 ... +7.5 V
Band 2	-0.75 ... +0.75 V
Band 3	-75 ... +75 mV
<b>External amplitude modulation</b>	
Depth	0 ... 100 %
Bandwidth	0 ... 20 kHz
<b>External enable</b>	
Delay	< 150 ns
<b>External trigger</b>	
Frequency range	0 ... 500 kHz
<b>Other</b>	
External interfaces	USB/RS-232, USB/LAN (option)
Display	Symbol LCD (20 x 4) with backlight
Power supply	230 VAC ± 10%, 50/60 Hz
Max power consumption	23 W
Operating temperature	0 ... 40 °C
Dimensions	97.1 x 249 x 245 mm
weight	≈ 5 kg