



## HA-GFA005 - SYNTHESIZED SIGNAL GENERATOR



- Perfect combination of DDS and PLL techniques..
- Frequency upper limits to 500 MHz.
- Higher level of frequency accuracy, up to 1 ppm.
- Complete AM/FM/FSK/PSK modulation function.
- Communication interfaces: USB, RS-232.
- 4 built-in fixed arbitrary waveforms: Exp, Sinc, Noise, DC.
- Sweep and Burst function.

### TECHNICAL DATA

#### CHA

Vertical resolution		0.1 dB ( $\geq 80$ MHz) 12 bit ( $< 80$ MHz)
<b>Frequency</b>		
Range	Sine	1 $\mu$ Hz ~ 500 MHz
	Square	1 $\mu$ Hz ~ 80 MHz
Resolution		1 $\mu$ Hz (carrier frequency $\leq 80$ MHz) 1 Hz (carrier frequency $> 80$ MHz)
	Accuracy	$\pm 1$ ppm, frequency $\geq 1.0$ kHz, 18° C up to 28° C $\pm 50$ ppm, frequency $< 1.0$ kHz, min.output 1 $\mu$ Hz
<b>Sine Output Level</b>		
Range	$\leq 500$ MHz	-127 dBm ~ +13 dBm (-127 dBm ~ -117 dBm typ.)
Resolution		0.1 dB
Accuracy	$\leq 300$ MHz	$\pm 1$ dBm in range of from +13 dBm up to -105 dBm
	$\leq 1500$ MHz	$\pm 1.5$ dBm in range of from +13 dBm up to -80 dBm $\pm 2.5$ dBm in range of from -80 dBm up to -100 dBm
Stationary Wave Ratio (SWR)		$< 1.8$ (output level $\leq 0$ dBm)
<b>Spectral Purity</b>		
Harmonic		$< -33$ dBc (output level $\leq 4$ dBm, typ.)
Non-Harmonic		$< -40$ dBc (output level $\leq 4$ dBm, deviation CF $\geq 5$ kHz)
Sub-Harmonic		$< -40$ dBc (output level $\leq 4$ dBm)
Residual FM		$< 100$ Hz (BW: 0.3 ~ 3 kHz, RMS $< 120$ MHz)
<b>Square</b>		
Rise/ Fall Time		$\leq 15$ ns
Overshoot		$\leq 5\%$
<b>Modulation</b>		
Type		AM, FM, FSK, PSK
External Modulation Input		Voltage range: 5 V full scale, input impedance: 10 k $\Omega$ , frequency: DC up to 10 kHz
<b>Frequency Sweep</b>		
Sweep rate		1 ms ~ 800 s linear (carrier $\leq 80$ MHz) 100 ms ~ 800 s logarithm (carrier $\leq 80$ MHz)
	Step time	50 ms ~ 10 s linear (carrier $> 80$ MHz)
<b>Burst</b>		
Burst count		1 ~ 10000 cycles
Interval		0.1 ms ~ 800 s

# HA-GFA005 - SYNTHESIZED SIGNAL GENERATOR

## KANAŁ CHB

Sampling rate	50 MSa/s	
Vertical resolution	10 bit	
<b>Frequency</b>		
Range	1 $\mu$ Hz ~ 10 MHz	
Resolution	1 $\mu$ Hz	
Accuracy	$\pm 1$ ppm, frequency $\geq 1.0$ kHz, 18°C up to 28°C $\pm 50$ ppm, frequency < 1.0kHz, min. output 1 $\mu$ Hz	
<b>Waveform</b>		
Type	Sine, Square, Ramp, Pulse, Sinc, Exp, Noise, DC	
Square	Rise/ fall time	$\leq 50$ ns
	Duty cycle	0.01% ~ 99.99%
Pulse	Rise/ fall time	$\leq 50$ ns
	Pulse width	20ns ~ 20s
Ramp	Symmetry	0.0% ~ 100.0%
<b>Output</b>		
Amplitude	1 mVpp ~ 10 Vpp(50 $\Omega$ ), 2 mVpp ~ 20 Vpp (High Z)	
Offset	$\pm 5$ Vpk ac + dc (50 $\Omega$ ), $\pm 10$ Vpk ac + dc (High Z)	
Resolution	5 mVpp	
Accuracy	$\pm (1\%$ of setting + 10 mVpp) (1 kHz Sine)	
Flatness	$\pm 0.5$ dB (1 MHz Sine, 1 Vpp)	
<b>General characteristics</b>		
Power	100V - 240 V AC, 50/60 Hz, 30 VA	
Dimension & Weight	254 $\times$ 103 $\times$ 374 mm; 4.2 kg	

## Standard Accessories:

Power cord	1 pc
BNC testing cable	1 pc
CD - user's guide	1 pc



## Ordering:

HA-GFA005	XX	X	X
<b>Version:</b>			
standard	00		
custom made*	XX		
<b>Language:</b>			
Polish		P	
English		E	
other*		X	
<b>Acceptance tests:</b>			
with an quality inspection certificate			1
with test certificate			2
acc. to customers request			X

\*after agreeing with the manufacturer

