



## **NSG 1007** **PROGRAMMABLE AC AND DC POWER SOURCES**



- **Combination AC and DC power source and power analyzer**
- **Arbitrary waveform generation**
- **Built-in digital power analyzer**
- **Meets source requirements for IEC 61000-3-2 and -3-3**

### **Easy to use controls**

The NSG 1007 series sources are microprocessor controlled and can be operated from an easy to use front panel keypad. Functions are grouped logically and are directly accessible from the keypad. This eliminates the need to search through various levels of menus and/or soft keys. A large analogue control knob can be used to quickly slew output parameters. This knob is controlled by a dynamic rate change algorithm that combines the benefits of precise control over small parameter changes with quick sweeps through the entire range.

### **Integrated system**

By combining a flexible AC/DC power source with a high performance power analyzer, the Teseq NSG 1007 sources are capable of handling complex applications that have traditionally required multiple instruments.

### **High crest factor**

With a crest factor of up to 5:1, the NSG 1007 series sources can drive difficult nonlinear loads with ease. Since many modern products use switching power supplies, they have a tendency to draw high repetitive peak currents. The Teseq sources can deliver a repetitive peak current of up to 3 times their rated continuous current.

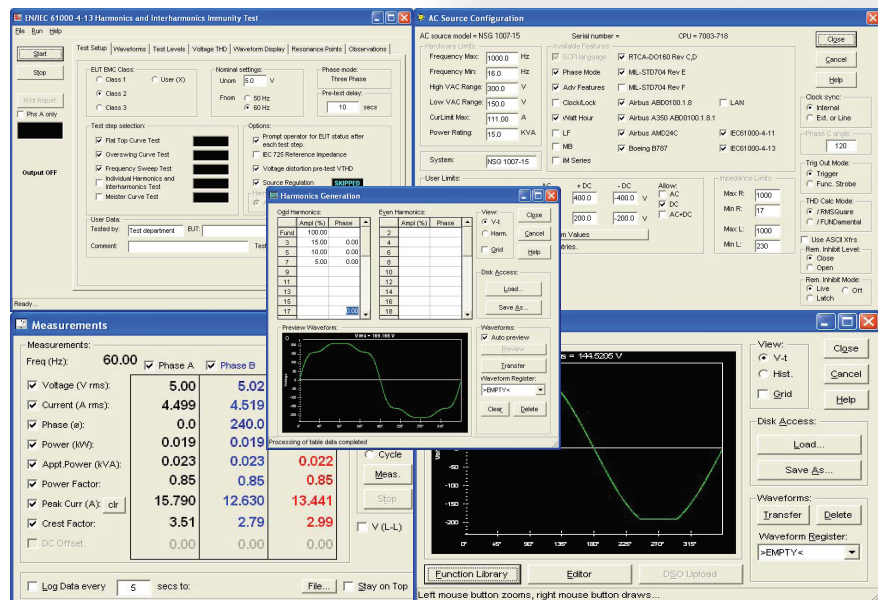
### **Applications**

With precise output regulation and accuracy, the sources address many application areas for AC and DC power testing. They provide a high load current capability, multi or single phase output modes, and built-in power analyzer measurements. Additional features including line distortion simulation (LDS), arbitrary waveform generation, and programmable output impedance address requirements for product quality and regulatory compliance testing.

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## Remote control

Standard IEEE-488 and RS232C remote control interfaces allow programming of all instrument functions from an external computer. The popular SCPI command protocol is used for programming. Drivers for several popular instrumentation programming environments are available to facilitate system integration. Instrument drivers for popular programming environments such as National Instruments LabView™ are available to speed up system integration.



Windows® application software is included with the NSG 1007 sources. This software provides easy access to the power source's capabilities without the need to develop any custom code. The following functions are available through this GUI program:

## Steady state output control (all parameters)

- Create, run, save, reload and print transient programs
- Generate and save harmonic waveforms
- Generate and save arbitrary waveforms
- Download data from a digital storage oscilloscope
- Measure and log standard measurements
- Capture and display output voltage and current waveforms
- Measure, display, print and log harmonic voltage and current measurements
- Run IEC 61000-4-11, IEC 61000-4-14 and IEC 61000-4-28 test programs
- Display IEEE-488 or RS232C bus traffic to and from the AC source to help develop your own test programs
- Requires PC running WindowsXP™ or Windows 2000™ or Windows Vista™

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# NSG 1007 PROGRAMMABLE AC AND DC POWER SOURCES

Model	NSG 1007-3	NSG 1007-5	NSG 1007-10	NSG 1007-15				
Supply option	240	208	400	208	400	208	400	
Operating modes	AC, DC, or AC + DC							
Frequency range	16 Hz – 1000 Hz (See voltage de-rating Vs frequency chart below)							
Total power	3,000 VA	5,000 VA	10,000 VA	15,000 VA				
Load power factor	0–1 at full rated power							
AC mode voltage	Voltage range		Low	High				
	AC		0–150 V	0–300 V				
	AC + DC		0–150 V	0–300 V				
	Load regulation (ALC ON)		<0.2%	<0.2%				
	Load regulation (ALC OFF)		<0.5% DC–100 Hz	<0.5% DC–100 Hz				
			<2.2% 100–500 Hz	<0.6% 100–500 Hz				
			<3% 500–1000 Hz	<3% 500–1000 Hz				
	Line regulation		<0.1% for 10% line change					
Output noise	(20 kHz to 1 MHz) <250 mVrms typical, <500 mVrms maximum							
Harmonic distortion	<1% from 16–66 Hz, <2% at 400 Hz, <3% at 800 Hz							
DC offset	<20 mV							
External amplitude modulation	Depth 0–10%, Frequency DC–2 kHz							
Isolation voltage	300 Vrms output to chassis							
<b>AC mode current</b>	Maximum current per phase							
Low range Steady state	22.2	37.0	74	37.0				
Low range Peak repetitive	110.0	110.0	220.0	110				
High range steady state	11.1	18.5	37.0	18.5				
High range peak repetitive	96.0	96.0	192.0	96.0				
Programming accuracy	Voltage (rms)		±0.2% of range					
	Frequency		±0.01% of programmed value					
	Current limit		±0.5% of programmed value					
	Phase		<1.5° with balanced load at 50/60 Hz					
Programming resolution	Voltage (rms)		100 mV					
	Frequency		0.01 Hz 16–81.91 Hz, 0.1 Hz 82.0–819.1 Hz, 1 Hz 820–1000 Hz					
	Current limit		0.1 Amps					
	Phase		0.1°					
Output relay	Push-button controlled or bus controlled output relay							
Output impedance	Programmable Z on NSG 1007-3, NSG 1007-5, NSG 1007-15							
	Resistive	Range: 17–1000 mOhm, Resolution: 4 mOhm, Accuracy: 2% FS						
	Inductive	Range: 230–1000 µH, Resolution: 4 µH, Accuracy 2% FS						

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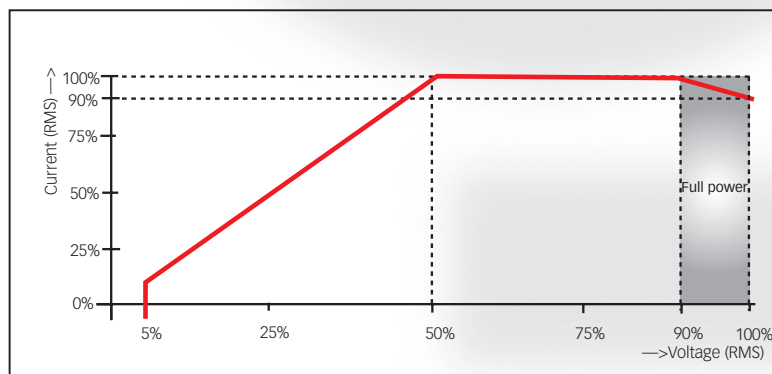
# NSG 1007 PROGRAMMABLE AC AND DC POWER SOURCES

Model	NSG 1007-3	NSG 1007-5	NSG 1007-10	NSG 1007-15
Supply option	240	208   400	208   400	208   400
Maximum power	2,100 Watts	3,500 Watts	7,000 Watts	3,500 Watts/Ø
Line regulation	<0.1% FS for 10% Line change			
Output noise	(20 kHz to 1 MHz) <250 mVrms typical, <500 mVrms Max			
<b>DC mode current</b>	Maximum DC current per output			
200 V range	15.6	26.0	52.0	26.0
400 V range	7.8	13.0	26.0	13.0
Current limit	Programmable from zero to maximum current for selected range			
AC + DC output power	Full AC power if DC component is less than 20% of full scale voltage, full DC power if DC component is above 20%			
Storage	Non volatile memory storage, 16 instrument setups, 200 user defined waveforms			
Waveforms	Waveform types User defined waveform storage	Sine, square, clipped sine, user defined Four groups of 50 user defined waveform of 1024 points		
System interface	Inputs Outputs	Remote shut down, external synch, clock/lock (optional) Function strobe, clock/lock (optional)		
Protection	Over load Over temperature	Constant current or constant power mode Automatic shutdown		

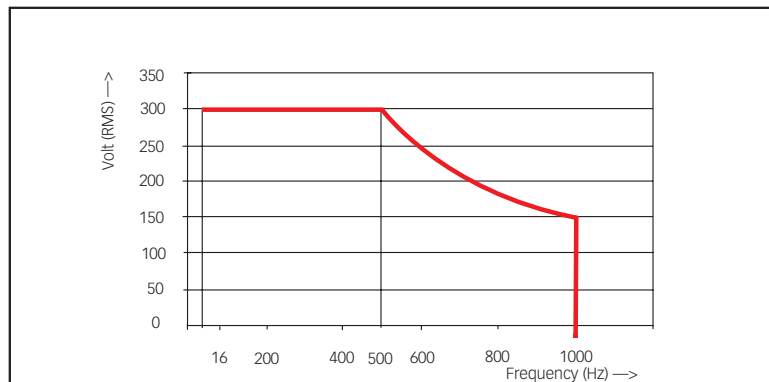
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# NSG 1007 PROGRAMMABLE AC AND DC POWER SOURCES



Constant power AC mode



Voltage Vs frequency de-rating curve

Note: Specifications are subject to change without notice. Specifications are warranted over an ambient temperature range of  $250 \pm 50$ C. Unless otherwise noted, specifications are per phase for a sine wave with a resistive load and apply after a 30 minute warm-up period. For three phase configurations, all specifications are for L-N. Phase angle specifications are valid under balanced load conditions only.

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# NSG 1007 PROGRAMMABLE AC AND DC POWER SOURCES

## Measurements-Standard

Parameter	Range	Resolution*	Accuracy* ±	
			<100 Hz	100 to 500 Hz
Frequency	16–500 Hz	0.01 Hz	0.01% + 0.01 Hz	
RMS voltage	0–300 V	10 mV	0.5 V + 0.02%	0.1 V + 0.02%
RMS current	0–40 A	1 mA	0.5 A + 0.02%	0.1 A + 0.02%
Peak current	0–120 A	1 mA	0.5 A + 0.02%	0.1 A + 0.02%
Crest factor	0.00–6.00	0.01	0.05	
Real power	0–6 kW	1 W	10 W + 0.1%	20 W + 0.1%
Apparent power	0–6 kVA	1 VA	10 VA + 0.1%	20 VA + 0.1%
Power factor	0.00–1.00	0.01	0.01	0.02
DC voltage	0–300 V	10 mV	150 mV	
DC current	0–40 A	1 mA	70 mA	
Power	0–6 kW	1 W	15 W	

\* Measurement system bandwidth = DC to 48 kHz. Accuracy specifications are valid above 100 counts. Power factor accuracy applies to PF >0.5 and VA >50% of range.

## Measurements-Harmonics

Parameter	Range	Resolution*	Accuracy* ±	
			Fundamental	Harmonics
Frequency (fundamental)	16–500 Hz	0.01 Hz	0.01% + 0.01 Hz	
Frequency (harmonics)	32–48 kHz	0.01 Hz	0.01% + 0.01 Hz	
Phase	0.0–360.0°	0.5°	2° Typical	
Voltage	Fundamental + harmonics 2–50	10 mV	250 mV + 0.1%	250 mV + 0.1% / kHz
Current	Fundamental + harmonics 2–50	10 mA	50 mA + 0.1%	50 mA + 0.1% / kHz

\* Accuracy specifications are valid above 100 counts. Accuracy specifications are times three for three phase mode. Harmonics frequency range in three phase mode is 32 Hz to 16 KHz.

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	NSG 1007-3		NSG 1007-5		NSG 1007-10		NSG 1007-15	
	-240	-208	-400	-208	-400	-208	-400	
Remote control	IEEE-488.2 and RS232C SCPI syntax							
AC input voltage ±10%	208-240 Vac L-N 1Ø	208-240 Vac L-L 3Ø	400-480 Vac L-L 3Ø	208-240 Vac L-L 3Ø	400-480 Vac L-L 3Ø	208-240 Vac L-L 3Ø	400-480 Vac L-L 3Ø	
Inrush current (period 100 µs)	<100 A pk	<100 A pk	<50 A pk	<100 A pk	<50 A pk	<100 A pk	<50 A pk	
Line frequency	50-60 Hz ± 10%							
Efficiency	75% Typical							
Power factor	0.6 Typical							
Dimensions (per chassis)	Height 178 mm, width 483 mm, depth 610 mm (7" x 19" x 24")							
Weight (per chassis)	Net 28 kg, shipping weight 52 kg							
Mechanical	Designed to meet NSTA 1 A transportation levels							
Cooling	Forced air, side intake rear exhaust							
Environmental	<b>Operating:</b> 0 to +40°C 0-95% RH non condensing. <b>Storage:</b> -20 to +85°C							
Regulatory	IEC 61010, EN 50081-2, EN 50082-2, CISPR 11 group 1 class A							

## Odering Information

Model	Output power AC	Output phases	Maximum current per phase				Input voltage	Input phases
			Low voltage range Amps		High voltage range Amps			
	kVA		AC	DC	AC	DC	Volts AC	1
NSG 1007-3-240	3	1	22.0	15.6	11.0	7.8	208 - 204	3
NSG 1007-5-208	5	1	37.0	26.0	18.5	13.0	208 - 204	3
NSG 1007-5-400	5	1	37.0	26.0	18.5	13.0	400 - 480	3
NSG 1007-10-208	10	1	74.0	52.0	37.0	26.0	208 - 240	3
NSG 1007-10-400	10	1	74.0	52.0	37.0	26.0	400 - 480	3
NSG 1007-15-208	15	3	37.0	26.0	18.5	13.0	208 - 240	3
NSG 1007-15-400	15	3	37.0	26.0	18.5	13.0	400 - 480	3

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Note: NSG 1007-10 consists of two NSG 1007-5 units and is supplied with an interface cable. Controller is in the master unit only, slave unit cannot be operated independently.

