



# NSG 4060 LOW FREQUENCY IMMUNITY TEST SYSTEM



The NSG 4060 is an EMC immunity test system for the frequency range 15 Hz to 150 kHz. It consists of sine wave generator, power amplifier and EUT monitoring interfaces. The application range includes tests according to IEC /EN 61000-4-16, IEC 61000-4-19 and various other standards in this frequency range. The NSG 4060 can be combined with the NSG 4060 Extension Unit for up to 300 V short duration disturbance tests for DC, 16<sup>2</sup>/<sub>3</sub> Hz, 50 Hz and 60 Hz as part of IEC /EN 61000-4-16.

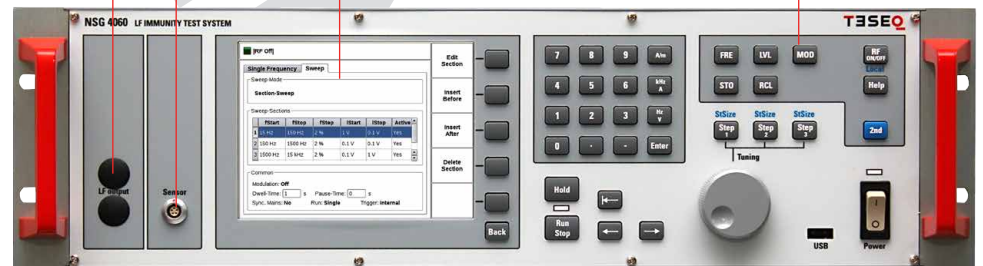
The powerful and easy to use firmware makes the NSG 4060 independent from an external PC and control software, however it can also be remote controlled for system operation. Part of NSG 4060's delivery is an USB-to-serial/optical converter which offers potential free remote control. It requires a free USB port on the control PC.

Please contact Teseq or visit [www.teseq.com](http://www.teseq.com) for the system accessories.

## NSG 4060 and Extension Unit

- Signal generator and integrated power amplifier 15 Hz to 150 kHz
- Meets IEC /EN 61000-4-16 in combination with the Extension Unit
- Meets IEC /EN 61000-4-19 and other standards
- Prepared test configurations for IEC /EN 61000-4-16 and IEC /EN 61000-4-19
- 5.7" color display
- Sensor input, phase sync input
- Multiple EUT monitoring options
- Easy upgradeable with the Extension Unit for up to 300 V short time test for DC, 16<sup>2</sup>/<sub>3</sub> Hz, 50 Hz and 60 Hz

- Optional generator output (standard equipped on the back)
- Stress sensor input
- 5.7" color display, easy to use firmware
- Hard keys for important functions

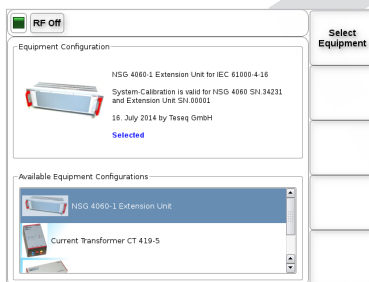


- User port for 4 TTL inputs and 4 TTL outputs and supply voltages for individual monitoring and control applications
- Generator output, system and coupling network control, phase synchronisation input
- Remote control via optical RS232, RS232, LAN or USB
- 2x USB, analog, digital and optical EUT monitoring inputs, external modulation input

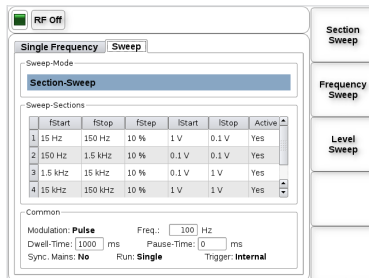


# NSG 4060 LOW FREQUENCY IMMUNITY TEST SYSTEM

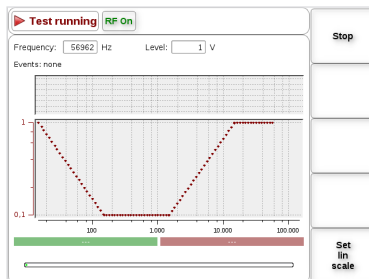
## Technical specifications NSG 4060



Firmware: Select equipment menu



Firmware: Sweep menu



Firmware: During testing

### IEC / EN 61000-4-16

Frequency range:	15 Hz to 150 kHz
Output voltage:	0.1 V <sub>rms</sub> to 30 V <sub>rms</sub> (adjustable 33 V)
Resolution:	0.01 V
Phase synchronisation:	0°
Harmonic distortion:	<10% for tests at mains frequencies, <1% for sweep tests

### IEC / EN 61000-4-19

Frequency range:	2 kHz to 150 kHz
Output voltage:	0.1 V <sub>rms</sub> to 22 V <sub>rms</sub> in combination with CDND M316-2
Output current:	0.1 A to 4.5 A, at 150 kHz 2 A in combination with CT 419-5
Harmonic distortion:	<5%

### Pulse modulation

Modulation frequency range:	3 Hz to 10 kHz
Frequency resolution:	0.01 Hz
Duty cycle:	50%
Rise/fall time (10% / 90%):	< 10 μs
Output impedance:	10 Ω ±30% in combination with CDND M316-2 and 1 Ω ±30% in combination with CT 419-5

### General

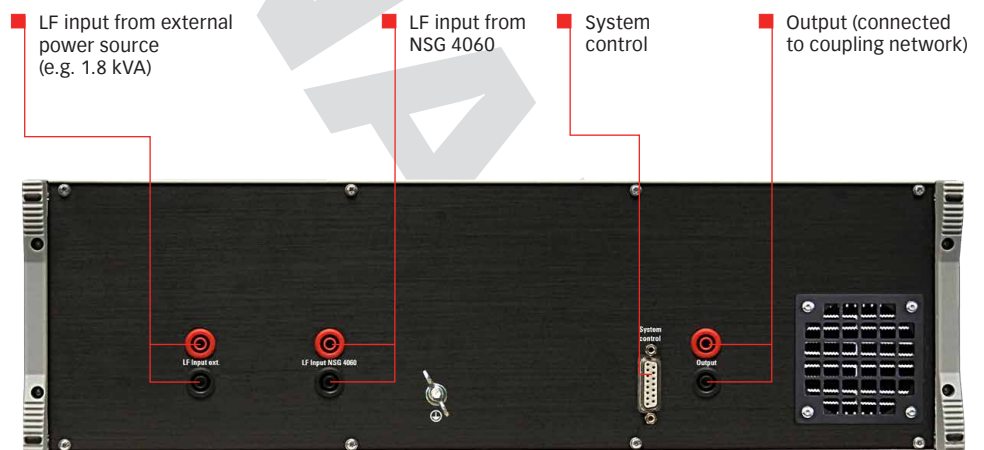
Frequency resolution:	0.01 Hz
Output connector:	4 mm safety banana
User port:	D-Sub 15 pole 4 TTL inputs 4 TTL outputs +12 V / 100 mA, -12 V / 100 mA, +5 V / 100 mA power supply
Monitoring input analog:	BNC socket, 0-24 V Ri=>15 kΩ, 6 mV resolution
Monitoring digital input:	BNC socket, 0 to 24 V via optical coupler Ri=1.5 kΩ, switching threshold approx. 2 to 3 V
Monitoring optical input:	optical fiber, HP versatile link HFBR0501 series 40 kBd, (avoid scattered light on the front panel)
Sensor input:	ODU socket, 0 to 5 V Ri≥4 kΩ, 6 mV resolution
External modulation input:	BNC socket (prepared only)
RS232:	D-Sub 9 pole, up to 115200 Bd
RS232 optical:	Connector 2 x HFBRx523 socket for 1 mm fiber optic cable with length between 5 m and 30 m with 115200 Bd, for other distances 38400 Bd, max. 50 m
Size (W x H x D) :	45 cm (19") x 15 cm (3HU) x 42.3 cm (with handle bar and foot)
Weight:	approx. 15 kg
Cardboard box:	60 cm x 55 cm x 37 cm, weight of cardboard box approx. 2.3 kg (empty)

# NSG 4060 LOW FREQUENCY IMMUNITY TEST SYSTEM

## Technical specifications NSG 4060-1 Extension Unit combined with NSG 4060

IEC/EN 61000-4-16	
Frequency range:	DC, 15 Hz to 200 Hz
Output voltage:	0.1 V to 300 VDC, range >100 V DC for 1 s only 0.1 V <sub>rms</sub> to ≥300 V <sub>rms</sub> AC (16 <sup>2</sup> / <sub>3</sub> Hz to 200 Hz) (max. 2 A) , range >100 V for 1 s only
Output impedance:	50 Ω ±10%
Rise and fall time of the DC output voltage at on/off switching:	between 1 to 5 μs
General	
Input/output connectors:	4 mm safety bananas
Size (W x H x D) :	45 cm (19") x 15 cm (3HU) x 42.3 cm (with handle bar and foot)
Weight:	approx. 35 kg
Cardboard box:	60 cm x 55 cm x 37 cm, weight of cardboard box approx. 2.3 kg (empty)

## View to the back plane of NSG 4060-1 Extension Unit



# NSG 4060 LOW FREQUENCY IMMUNITY TEST SYSTEM

## Application range

Standard	Generator	Level	Modulation	Range	Impedance	Phase synchronisation	Harmonic distortion		
IEC 61000-4-16	NSG 4060 + NSG 4060-1	Continuous level: 0.1 to 30 V (adjustable 33 V)	-	DC	50 Ω, Note 1	-	-		
		Short time levels at mains f with 0.1 to 300 V (adjustable 330 V)							
		Short time levels at mains f with 0.1 to 300 V <sub>rms</sub> (adjustable 330 V), Note 3		16 <sup>2</sup> / <sub>3</sub> to 200 Hz				to 0°	<10%
		Continuous level: 0.1 to 30 V <sub>rms</sub> (adjustable 33 V)		15 Hz to 150 kHz				-	<1%
IEC 61000-4-19	NSG 4060	Continuous voltage level (open circuit): 0.1 to 20 V <sub>rms</sub> (adjustable 22 V)	Tests with CW + pause and PM	2 kHz to 150 kHz	10 Ω, Note 2	-	<5%		
		Continuous current level (short circuit): 2 kHz - 30 kHz, up to 4 A <sub>rms</sub> 30 kHz - 150 kHz, up to 2 A <sub>rms</sub>						1 Ω, Note 2	-

f = frequency

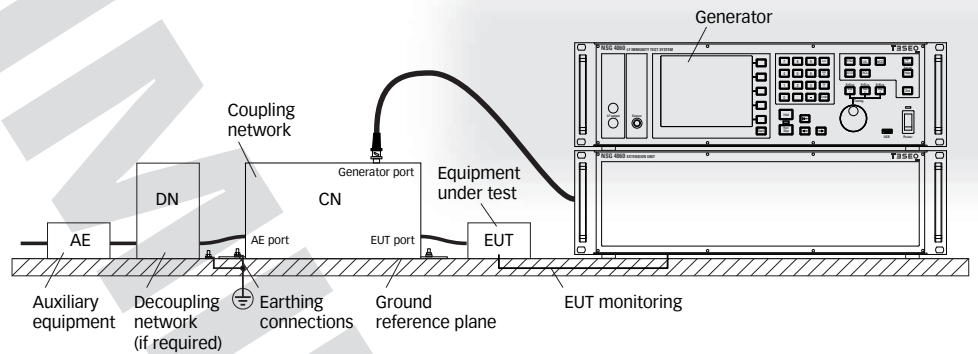
Note 1: Included in NSG 4060-1 Extension Unit

Note 2: In combination with the coupling network/ current transformer.

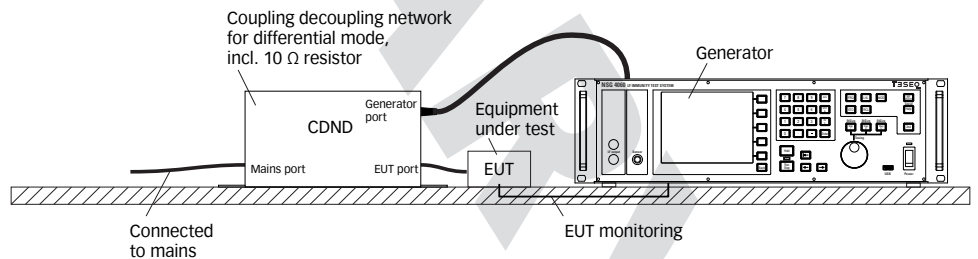
Note 3: Max. 2 A.

# NSG 4060 LOW FREQUENCY IMMUNITY TEST SYSTEM

Application for IEC/EN 61000-4-16, continuous disturbance test and frequency sweep in the frequency range DC, 15 Hz to 150 kHz with voltage levels up to 30 V, short duration disturbance test with voltage levels up to 300 V for DC,  $16^{2/3}$  Hz, 50 Hz and 60 Hz

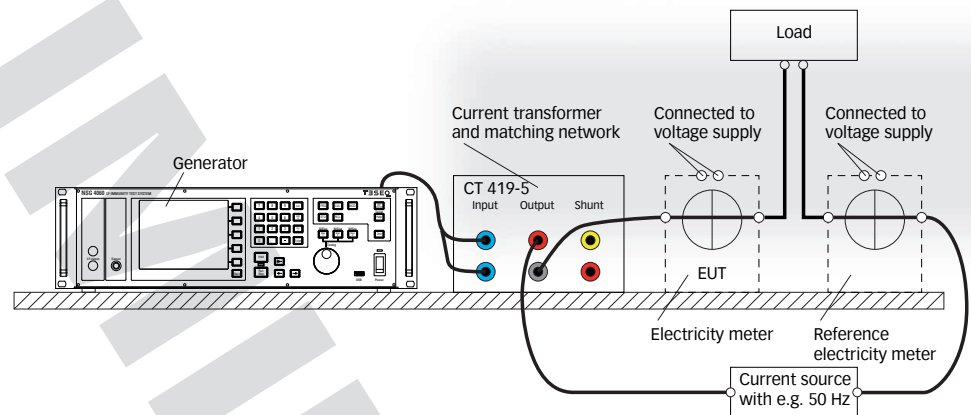


Application for IEC/EN 61000-4-19, frequency sweep in the frequency range 2 kHz to 150 kHz with voltage levels up to 22 V



# NSG 4060 LOW FREQUENCY IMMUNITY TEST SYSTEM

Application for IEC /EN 61000-4-19, frequency sweep in the frequency range 2 kHz to 150 kHz with current levels up to 4 A



## Delivery items for the NSG 4060 series

NSG 4060: NSG 4060 main unit; RS232 cable (Nullmodem); USO 4013 (USB to serial/optical converter with 20 m optical cable); mains cable GB, CH, USA/JP, EU; operating manual

NSG 4060-1: NSG 4060-1 extension unit; data interconnection cable; earth cable; safety banana cable 25 cm; ; safety banana to BNC cable 100 cm; mains cable GB, CH, USA/JP, EU

## Model No. and options

Part number	Description
255500	NSG 4060 Low frequency immunity test system, 15 Hz to 150 kHz for continuous disturbances accord. IEC 61000-4-16/4-19 up to 30 V and other standards, 600 W amplifier, 3 HU rack version
255501	NSG 4060-1 Extension Unit of NSG 4060 for short duration tests accord. IEC 61000-4-16 up to 300 V at DC, 16 <sup>2</sup> / <sub>3</sub> Hz, 50 Hz and 60 Hz, 3 HU rack version
97-255500	NSG 4060-TC Traceable calibration (ISO17025), order only with the device
98-255500	NSG 4060-DAkKS DAkKS calibration (ISO17025), order only with the device
For coupling networks and accessories please use the web page <a href="http://www.teseq.com">www.teseq.com</a> .	

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