



Advanced Test Equipment Rentals

www.atecorp.com 800-404-ATEC (2832)



$$s(q_k) = \frac{1}{n-1} \sum_{k=1}^n (q_k - \bar{q})^2$$

Comparison NSG 5500 to NSG 5000

NSG 5500 MT5511

<u>Pulse</u>	<u>Voltage Range (V)</u>	<u>Rise Time</u>	<u>Pulse Width</u>	<u>Internal Ri (?)</u>	<u>Repetition Rate t1 (Sec.)</u>	<u>Polarity</u>
Pulse 1	0-330 (1V Steps)	1µs, 2µs, 3µs	2ms, 6ms	4, 10, 20, 30, 50, 90	0,5-60 (0,01 Steps)	Neg., Pos.
	0-200 (1V Steps)	1µs	2ms	10	0,2-60 (0,01 Steps)	Neg., Pos.
	0-600 (1V Steps)	1µs, 3µs	1ms	20, 50	0,5-60 (0,01 Steps)	Neg., Pos., BNC
Pulse 1 (24 V)	0-600 (1V Steps)	1µs, 3µs	2ms, 2.3ms	10, 20, 30, 50	0,5-60 (0,01 Steps)	Neg., Pos., BNC
Pulse 2a	0-330 (1V Steps)	1µs	50µs	2, 4, 10, 20, 50, 90	0,2-60 (0,01 Steps)	Neg., Pos., BNC
Pulse 6	0-330 (1V Steps)	60µs	300µs	30	0,5-60 (0,01 Steps)	Neg., Pos., BNC
Others	0-330 (1V Steps)	1µs	50µs, 35µs	2, 50	0,2-60 (0,01 Steps)	Neg., Pos., BNC
	0-330 (1V Steps)	1µs	50µs, 150µs, 200µs, 350µs	4, 10, 30	0,2-60 (0,01 Steps)	Neg., Pos., BNC
	0-330 (1V Steps)	2µs	50µs	10	0,2-60 (0,01 Steps)	Neg., Pos., BNC

NSG 5000 NSG 5041 and NSG 5500 MT 5510 Parameters

<u>Pulse</u>	<u>Voltage Range (V)</u>	<u>Rise Time</u>	<u>Pulse Width</u>	<u>Internal Ri (?)</u>	<u>Repetition Rate t1 (Sec.)</u>	<u>Polarity</u>
Pulse 1	- 20 to -200 (1V Steps)	1.3 us	1 ms	10, 20, 50	0.5 - 5	Neg.
	-150 to -600 (1V Steps)	1 us	1 ms	20	0.5 - 5	Neg.
	-12 to - 220 V (1V Steps)	1 us	50 us	2, 10, 50	0.2 - 5	Neg.
Pulse 1 (24V)	-150 to -600 (1V Steps)	3 us	1 ms	50	0.5 - 5	Neg.
Pulse 2	+12 to + 220 (1V Steps)	1 us	50 us	1, 20, 10, 50	0.2 - 5	Pos.
Pulse 6	-10 to -500 (1V Steps)	<60 us	300 us	30	0.5 - 15	Neg.
Others	-20 to -110 (1V Steps)	1 us	2 ms	10	0.5 - 5	Neg.
	-30 to -300 (1V Steps)	1 us	50 us	4	0.2 - 5	Neg.
	+20 to +150 (1V Steps)	1 us	50 us	4	0.2 - 5	Pos.

NSG 5500 FT 5530

<u>Pulse</u>	<u>Voltage Range (V)</u>	<u>Rise Time</u>	<u>Pulse Width</u>	<u>Internal Ri (?)</u>	<u>Repetition Rate</u>	<u>Polarity</u>
Pulse 3 a/b	20 to 800	5 ns	150 ns	50	1 to 100 kHz	Neg., Pos., BNC
Pulse 3 a/b	20 to 800	5 ns	100 ns	50	1 to 100 kHz	Neg., Pos., BNC

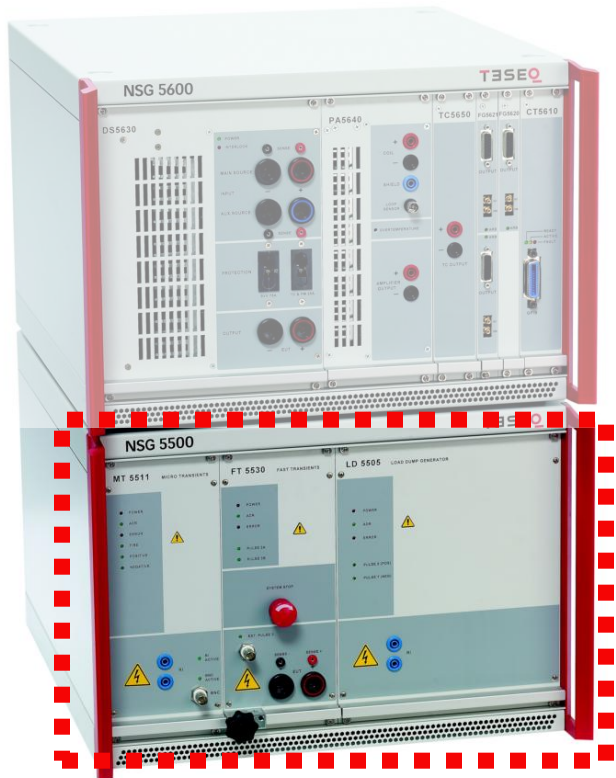
NSG 5000 NSG 5003

<u>Pulse</u>	<u>Voltage Range (V)</u>	<u>Rise Time</u>	<u>Pulse Width</u>	<u>Internal Ri (?)</u>	<u>Repetition Rate</u>	<u>Polarity</u>
Pulse 3 a/b	20 to 800	5 ns	100 ns	50	1 to 100 kHz	Neg., Pos., BNC



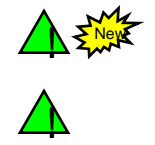
$$s(q_k) = \sqrt{\frac{1}{n-1} \sum_{k=1}^n (q_k - \bar{q})^2}$$

NSG 5500 – Transients, Pulse 1-3, 5-7



Transient Immunity System

- Built-In 100A (250A peak) Battery Switch/Coupler
- True Modular Structure using Gemini Technology
- Compliant “Capacitive Discharge Into Pulse Shaping Network”



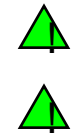
Automotive Pulse 3 Generator

- Two Ranges 5/100 ns and 5/150 ns for Old and New Standards



Pulse 1, 2, 6, 7 Generator

- Supporting Latest and Classic Standards
- Able to be ‘swapped’ for JASO and Truck Standards



Pulse 5 Generator

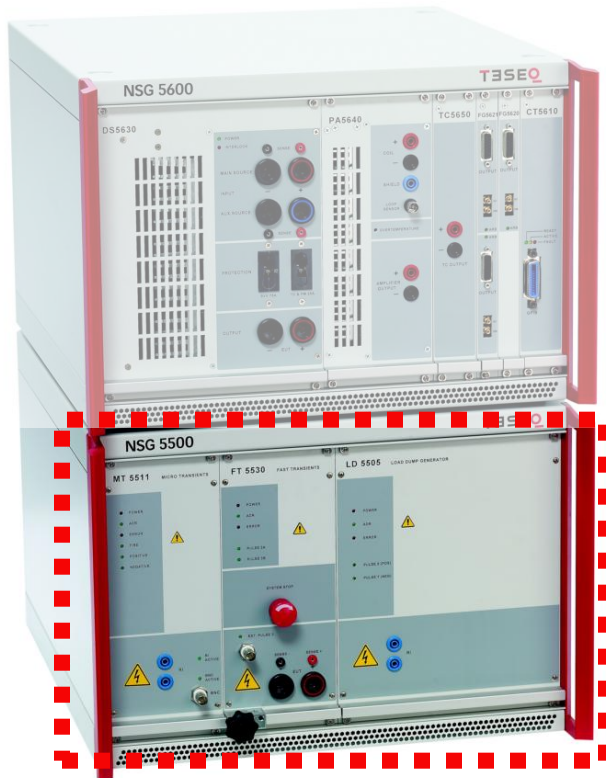
- Compliant for the Full Range of Load Dump Requirements for R_i and t_d
- Fully programmable R_i , t_d and t_r (1ms steps)



 New Feature
 Teseq Unique Feature

$$s(q_k) = \sqrt{\frac{1}{n-1} \sum_{k=1}^n (q_k - Q)^2}$$

New New Features



- Internal 100 A coupler standard for high quality pulses at the DUT output
- New Ground Connection
- New ‘System Stop’ button
- Now available in extended chassis version (NSG 5500-2)
- MT 5511 - Expanded pulse widths and rise times, BNC, External Ri available, More internal Ri options
- FT 5530 - 5/100 and 5/150 ns Pulse 3a and 3b

Other Notes

The LD 5505 load dump generator is 100% functionally equivalent to the NSG 5005A

The INA 5027 is no longer supported by AutoStar except for very basic Pulse 4 and Pulse 2b applications only.

The MT 5510 was 100% functionally equivalent to the NSG 5041 (MT 5510 is now replaced with expanded MT 5511)

The NSG 5500 guarantees compliance to ISO 7637-2 Annex D verification.

Used by many accredited labs.



$$s(q_k) = \sqrt{\frac{1}{n-1}}$$

NSG 5600 – Pulse 4 Starting Profiles, Dropouts and Magnetic Fields



Flexible and Powerful Programmable Function Generator

- Easy to Program and Synchronize up to Four Internal Function Generators



- “Clone” function for digital capture and duplication from Oscilloscope, or Imported from MathCAD, Excel etc.



- One-click Programming For:



- Sine
- Square Wave
- Triangle
- Exponential Function
- DC and DC Ramps

- Able to be Modulated



Transformer Coupled Sine Wave Noise



Magnetic Field Immunity Tests

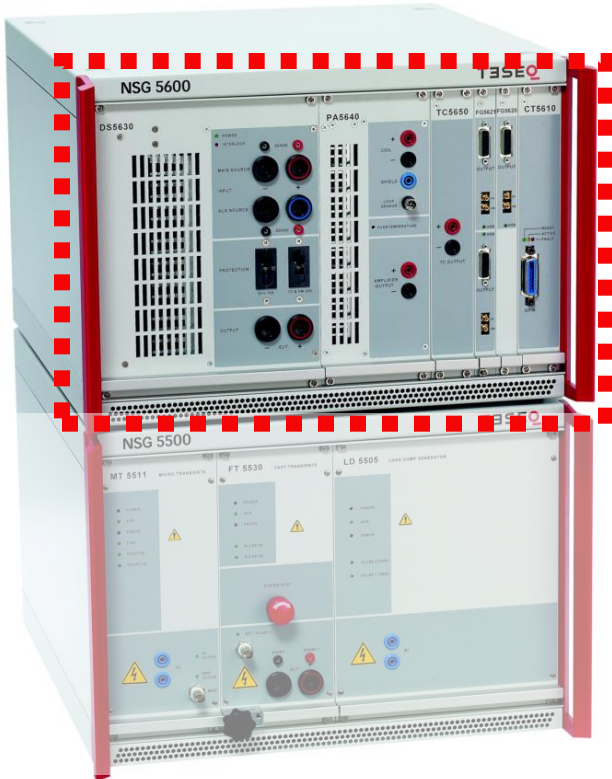


- Current or Loop Sensor Calibration

- Includes Small Power Amplifier for General Use



Dips and Drops Testing (~1us)



Teseq Unique Feature

$$s(q_k) = \sqrt{\frac{1}{n-1}}$$

Overview - Rough Equivalency Chart



For the purposes of clarity, the following description shows old the module names and their replacements.

NSG 5500 (NSG 5000 Replacement)

MT 5510 – NSG 5041 (Pulse 1, 2a, etc. Generator) →

FT 5530 – NSG 5003 (Pulse 3a/3b Generator) →

LD 5505 – NSG 5005A (Load Dump Generator) →

JT 5550 – NSG 5054 (Jaso LD)

JT 5510 – NSG 5055 (Jaso Others)

RM 5505 - NSG 5025

NSG 5600 (Former NSG 5200)

FG 5620 – ARB 5220 (Function Generator)

PA 5640 – AMP 5240 (Power Amplifier)

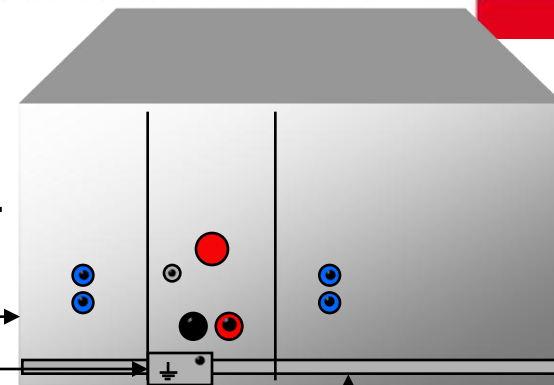
CT 5610 – CTR 5210 (Controller)

DS 5630 – DCS 5230 (Dropout Switch)

TC 5650 – CSW 5250 (Transformer Coupler)

PA 5840 – NSG 5270 (Battery Simulator)

PA 5740 – NSG 5004 (Battery Simulator)



MT 5510

Purpose mnemonic Series (Pulse) Designator Revision