

# NSG 435 ESD Simulator

Advanced, compact  
ESD test system



**SCHAFFNER**

EMC SYSTEMS

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# NSG 435

## A new concept

- **User programmable discharge voltage 200V to 16.5kV**
- **Built-in IEC 1000-4-2 test settings**
- **Battery powered**
- **Compact and lightweight design**



Combining ease of operation and ergonomic design with exceptionally high functionality, the NSG 435 offers all the features of a comprehensive ESD test system in a compact, light-weight, hand-held instrument.

ESD tests form a particularly powerful part of EMC test strategies: they are used to verify complete systems and identify disturbances in installations, as well for type testing. The high frequency components of the pulse help diagnose immunity failures caused by bad cabling or system composition, and can also indicate grounding problems.

### Ergonomic design and high functionality

Careful attention has been paid to ergonomic design to ensure that the NSG 435 sits easily in the hand without being tiring or uncomfortable during long or repeated test procedures. The liquid crystal display panel is clearly visible at all times in the working position and all the controls are conveniently at the user's fingertips.

The NSG 435 is powered by a rechargeable battery supply, so there is no separate high voltage generator or stiff connecting cable to hinder access to the EUT. The battery, which lasts for several days under normal test usage, can be easily interchanges and recharged in just three hours.

Microprocessor-based control and a five-key pad give access to the comprehensive range of built-in functions. The liquid crystal display shows the operating status and all user-programmed test parameters continuously. A discharge pulse counter is incorporated and a further handy feature is the provision of a preset counter for long duration tests and remote use.

The NSG 435 has its own high voltage generator producing pulses up to 16.5kV. In addition to the pre-programmed, standard IEC pulses, the user can create custom tests, using single or repetitive discharges with selectable frequencies, discharge rates and manual or automatic polarity switching. A unique feature is the detection of a real or valid discharge thereby avoiding misleading discharge counts. This is especially important during long term and remote test set up.



The NSG 435 comes with a 150pF/330Ω discharge network for tests to IEC 1000-4-2, and a range of interchangeable discharge networks is available for other standards including EN, ANSI-IEEE, ISO, etc. The discharge voltage of up to 16.5kV for air discharges and up to 9kV for contact discharges ensures a comfortable margin over and above the values required for the standard tests.



## Basic Kit



The standard basic NSG 435 simulator system consists of:

- Carrying case 42 x 32 x 13.5cm (16.5 x 12.5 x 5.3ins)
- NSG 435 electrostatic discharge generator
- Battery pack
- Discharge network for 150pF/330Ω test to IEC 1000-4-2
- Test finger, air discharge
- Test finger, contact discharge
- Earthing cable
- Battery re-charger
- Operating instructions

## Optional Extras



A range of optional extras is available for special applications:

- Carrying case (options) 42 x 32 x 13.5cm (16.5 x 12.5 x 5.3ins)
- Mains power supply unit
- Spare battery pack
- Remote triggering unit with 5m (16ft) fibre-optic cable
- Discharge network for 150pF/150Ω test to IEC 801-2/1984
- Special discharge networks
- Test finger with fast leading edge <400ps
- Coaxial measuring adapter

## Technical specifications

Pulse data - standard	As per IEC 1000-4-2
Pulse data - special	Interchangeable test fingers to conform with other standards
Discharge network - standard	150pF/330Ω as per IEC 1000-4-2
Discharge network - special	Interchangeable networks to conform with other standards
Discharge voltage - air	200V to 16.5kV (in 100V steps); tolerance ±5%, 1 to 16kV
Discharge voltage - contact	200V to 9kV (in 100V steps); tolerance ±5%, 1 to 9kV
Test finger - standard	Ball and point as per IEC, interchangeable, screw fitting
Test finger - special	Special test finger for fast rise time pulse
Voltage measurement	On HV side, dynamic; accuracy better than ±5%, 1 to 16kV
Holding time	> 5s
Triggering	Manual trigger button or optical remote input
Remote control	Optical interface for INA 415
Power supply	Rechargeable battery pack in hand-grip, interchangeable, 3hour re-charging time; mains power unit available as an accessory
Polarity	Positive, negative or automatic switching
Operating modes	Single; repetitive at 0.5, 1, 5, 10, 20, or 25Hz; continuous
Pulse counter	0 to 9999
Pre-set counter	0 to 9999
Display	LCD panel showing: discharge voltage • breakdown voltage • polarity • air/contact discharge • counter/preset counter • soft key functions • battery monitor
Weight	NSG 435 with battery: 1.2kg (2.64lbs) approx.
Environmental conditions during operation	5 to 40°C (40 to 105°F); 20 to 80% rh (non condensing); 68 to 106kPa

## A comprehensive test package

The simulator system is supplied with standard accessories, including interchangeable test fingers, an earthing cable and battery re-charger - all in a durable carrying case. There is an optional fibre optic remote control trigger for operation inside a screened room or enclosure. The LC-display gives the operator a clear, continuous indication of all the test parameters, the operational status of the instrument and the current function of each of the five software-controlled keys as well as:

- Discharge voltage - actual or pre-set voltage, with polarity indicator
- Counter - number of discharges, up-counter or preselection down-counter
- Battery status - low battery indicator



## NSG 435 ordering information

### The Schaffner NSG 435 ESD simulator system range

NSG 435 ESD Simulator system basic kit	Order No.	Quantity	NSG 435 ESD Simulator system options	Order No.	Quantity
NSG 435 ESD simulator with the following accessories:			Carrying case (options)	INA 410	
<ul style="list-style-type: none"> <li>Carrying case</li> <li>Network for IEC 1000-4-2 (150pF/330Ω)</li> <li>Test fingers - ball and point</li> <li>Battery pack</li> <li>Earth cable</li> <li>Operating instructions with:</li> <li>Charging unit, 115/230V, 50/60Hz, with Euro-connector</li> </ul>	NSG 435-01	.....	Mains power supply, 80 to 240V, 50/60Hz, inc. grip-adapter*	INA 402	
			Spare battery pack	INA 405	
			Remote triggering unit including 5m opto-cable	INA 415	
			IEC 801-2/1984 (150pF /150Ω) discharge network	INA 421	
			Test finger for IEC 1000-4-2 with fast leading edge < 400ps	INA 420	
			Discharge networks, special versions	contact local sales office	
			Measuring adapter IEC 1000-4-2	MD 101	.....
NSG 435 ESD simulator with all the accessories as listed above, and with:					
<ul style="list-style-type: none"> <li>Charging unit, 115/230V, 50/60Hz, with US-connector</li> </ul>	NSG 435-04	.....	* Specify mains cable: - 01 SCHUKO; - 02 SEV 13; - 04 UL 498; - 05 BS 1363		
NSG 435 ESD simulator with all the accessories as listed above, and with:					
<ul style="list-style-type: none"> <li>Charging unit, 100V, 50/60Hz, with US-connector</li> </ul>	NSG 435-07	.....	Use a copy of this page as your order form by completing the right-hand column with the quantities required and returning it to your local sales office.		

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