



NSG 439
FULLY AUTOMATED ROBOTIC ESD TESTING



- **Complete solution for robotic applications**
- **Compact and specially designed housing**
- **Unique robotic air-discharge adapter**
- **Fully compliant with IEC/EN 61000-4-2 and ISO 10605**
- **Robot attachment points on multiple enclosure faces**
- **Easily and quickly interchangeable networks**

Complete system solution with 30 kV ESD simulator for robotic applications.

Today's growing trend towards miniaturizing and more comprehensive product standards means that ESD testing is now required not only for operating controls, but also for any associated peripheral devices such as sensors, actuators and controllers. Many of these devices have multi-pin connectors with high pin counts. In order to meet space restrictions, these pins are often arranged close together.

However, conventional air-discharge testing of these closely spaced pins is problematic because the air-discharge arc may jump to an adjacent pin instead of the pin intended for test. With an innovative robotic air-discharge adapter accessory, Teseq provides a tool which will prevent unintentional discharge paths. Furthermore, the approach speed, which is crucial for reliable air-discharge testing, can be programmed as a constant.

ESD testing of connectors often requires that each individual pin is tested for an extensive range of conditions including multiple discharges, polarities, voltage settings, and even R/C networks. Connector testing can take many hours or even days of monotonous, precise effort to complete. As a result, when this testing is done manually it is prone to errors. The advantage of robotic testing is that these procedures can be automated and precisely executed, ensuring a level of repeatability that cannot be achieved with manual testing.

The NSG 439 has been designed to withstand the large acceleration forces found in harsh robotic environments. The ESD simulator includes all NSG 438 functions, and supports the complete set of discharge networks and optional discharge probes. In order to guarantee the greatest possible functionality, Teseq offers the NSG 439 only as a complete test station including the robotic mechanism, ESD simulator, control software, test bench and interlocked enclosure.

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Technical specifications

Description:	Compact ESD simulator with microprocessor-based, large touch-sensitive LCD panel, built-in HV relay for contact-discharge, battery and mains operation
Basic set:	Carrying case with: discharge pistol, cradle for discharge pistol, high voltage base unit with built-in battery pack, mains adapter and battery charging unit (100 to 250 VAC), discharge network 150 pF/330 Ω , air- and contact-discharge tips, grounding cable, user manual
Pulse data:	Standard: conforms to IEC/EN 61000-4-2 (2001) Special: interchangeable networks for other standards
Standard pulse networks:	Network 150 pF/330 Ω as per IEC/EN 61000-4-2 Optional ISO 10605 networks 150 pF/2 k Ω and 330 pF/2 k Ω Range of R/C networks for other standards as accessories: R = 0 to 20 k Ω ; C = 50 to 2000 pF
Discharge voltage:	Air-discharge: 200 V to 30 kV (in 100 V steps) Contact-discharge: 200 V to 30 kV (in 100 V steps)
Discharge tips:	Ball and point as per IEC, exchangeable by threaded cap
Charging voltage measurement:	kV, air-discharge, dynamic accuracy better than $\pm 5\%$
Discharge detection: (air-discharge only)	Indicated by the kV symbol being displayed in inverse, also acoustically in the 'Single' operating mode
Holding time:	>5 s (charging voltage $\pm 5\%$)
Triggering:	Trigger button in handgrip or via remote control input
Power supply:	Input: 100 to 250 V/ 50 to 60 Hz / 1 A, output: DC 24 V/2.3 A
Operation:	Via touch panel and microprocessor
Polarity:	Positive/negative/automatic change
Operating modes:	Single/repetitive/random (time/pulse) Pulse counter: 0 to 9999, preselect counter: 0 to 9999 Repetition: - 0.5/1/5/10/20 or 25 Hz (air) - 0.5/1/5/10 or 20 Hz (contact), - freely selectable from 0.04 to 300 s - continuous operation
Display:	LCD panel showing: charging voltage, breakdown event, polarity, air-/contact-discharge, counter/preselect counter content, network parameters, battery monitor
Weight:	Discharge pistol (w/o cable): 1.2 kg (2.6 lbs) approx. Base unit: 6.5 kg (14.3 lbs) approx.
Ambient conditions:	Operation: +5 to +40°C, 20 to 80% r.h. (non-condensing), 68 to 106 kPa

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Ordering information

NSG 439	NSG 439 ESD simulator - basic set as per technical specifications
Accessories:	
INA 4381	Discharge network ISO 10605, 150 pF/2 k Ω
INA 4382	Discharge network ISO 10605, 330 pF/2 k Ω
INA 4383	Discharge network, ANSI C63.16, 150 pF/330 Ω
INA 4384	Discharge network, ANSI C63.16, 150 pF/75 Ω
INA xxxx	Special discharge networks, specify standard and/or values of R/C
INA 4411	Fast risetime test tip <400 ps
INA 4421	Tripod support
INA 4422	Carrying bag for the base unit
MD 101	ESD measurement target conforming to IEC/EN 61000-4-2 (2001)
MD 103	ESD measurement target (ANSI and IEC draft)
INA 414	Ground cable with resistors (2 x 470 k Ω)
INA 4413	Discharge tip with 0.5 m flexible cable
INA 4414	Air-discharge ball
INA 4415	Flexible tip set
INA 4416	Soft touch contact tip
INA 4417	Banana socket contact tip
INA 4418	Banana socket fast rise time tip
INA 4419	E-field adapter
INA 4420	H-field adapter
INA 417B	Opto-link set to a PC with 10 m opto-cable