TRANSIENT IMMUNITY SIMULATORS FOR CONDUCTED DISTURBANCES

NSG 3040 AND NSG 3060 MULTIFUNCTION GENERATOR SYSTEMS

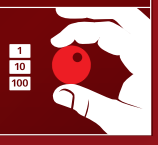
TESEQ

Advanced Test Solutions for EMC

BENEFIT

CONVENIENCE

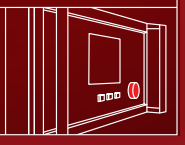
Easy and intuitive user interface



BENEFIT

DESIGN

Exceeds standard requirements



TEST WITH THE BEST

SMART EQUIPMENT FOR A BRIGHT FUTURE

Q is for Quality: Teseq® is a leading global high-tech company for EMC test systems. We develop and manufacture test instruments, software and accessories for emission and immunity testing. Our extensive product range is unique. We help our customers secure a leading position in international markets through our innovative and compliant solutions and reliable test results.

BENEFIT

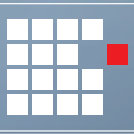
TECHNOLOGY

More performance for the price

BENEFIT

MODULARITY

Meets today's needs – upgrade to meet tomorrow's needs



BENEFIT

SAFETY

User protection – overload protection

360° COMPETENCE

Leadership through creativity and conformity: No progress without challenge, no development without customer feedback. We are renowned for our ability to think broader and develop further. Our engineers are creative perfectionists, who are constantly applying the latest technology, focusing on user-friendly design solutions and incorporating current information on the latest standards. Our solutions are used in a majority of accredited and certified laboratories, as well as in manufacturers' laboratories from the following sectors:

Indoor Appliances

Domestic

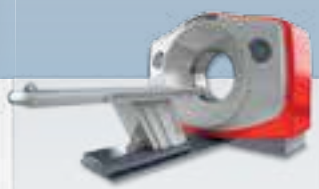
- White goods
- Brown goods
- Household appliances
- Lighting devices
- Portable tools
- Electric vehicle chargers
- Home automation
- Smart meters
- Smart devices/appliances

Industrial

- Robotics
- Welding machines
- Packing machines
- Production lines
- Laboratory equipment

Medical

- Monitoring
- Scanning
- Analyzing
- Pumps
- Implants



IT

- Computers
- Printers
- Modems
- Hubs
- Phones
- Servers
- HAN – Home Appliances Network
- Cloud computing

Outdoor Appliances

Renewable energy

- Solar panels
- Windmills
- Turbines
- Inverters
- Infrastructure
- Smart grids
- Distribution
- Components
- Switching stations

Telecom

- Outdoor lines
- Repeaters
- Switching stations
- Data concentrators
- Telecommunication centers

Transportation

- Automotive
- Motorcycles
- Trucks
- Electric vehicles
- Charging stations
- Aircraft
- Railway
- Satellites
- Space applications

Defense

- Component testing
- Communications
- Vehicles
- Aircrafts
- Satellites
- Servers
- Submarines

TEST IT EASY

Just as expected: More than a display, the user interface of the NSG 3000 series is based on an embedded computer, a 7.2" color TFT display with touch panel, a wheel with step size keys and large start-stop-pause keys. Intelligent menu structure, large parameter fields, test libraries, explanatory graphics, ramping and stepping possibilities allow easy and intuitive operation combined with great performance.

1

Test window: All relevant parameters are clearly presented. Just click a parameter field to activate it, then make adjustments via the wheel with step size keys or the virtual keypad.

Plug-and-play configuration: The startup menu shows the functionality of all available system hardware. Add a module or accessory and the NSG 3000 interface will detect the device and display its available functions. Grayed-out fields give an overview of possible upgrades.

2

Wheel with step size keys: The 1, 10 and 100 step size selections allow fast and accurate setting of any selected parameter.

3

Large start-stop-pause keys with backlight: One of the most convenient and appreciated features of the NSG 3000 series.

4

Test libraries: Comprehensive test libraries include a broad range of standard tests for current as well as older standard revisions. Updated test libraries are provided free of charge with each new software revision.

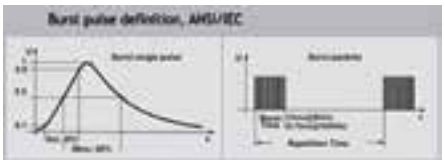
5

Parameter ramping: Increases automation possibilities. Most parameters can be set to ramp automatically from a start to a stop value, with adjustable steps.

6

Test steps: Sophisticated test step automation provides the ability to change parameters from one step to the next and include ramped parameters in a single test step. An entire sequence can be saved to the user library under one test name.

7



User assistance: Graphics provide detailed information on EMC-specific parameters. An intuitive user interface eliminates the need for additional manuals.

8

Status LEDs: 5 LEDs provide status information for most important parameters. LED status indicators are also located on external CDNs and accessories.

ABOVE THE ORDINARY

21st century technology gives the NSG 3000 series unequaled performance:

- Real plug-and-play technology
- Functional modules with integrated identification, calibration files and intelligence
- Highly flexible configurations with nearly any combination of modules support customized configurations for individual applications
- Easy upgradeability and service

Cutting-edge technology is critical when making EMC testing investment decisions, as this type of equipment is typically used for 10 years or more.

Combination Wave Surge

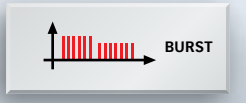
As specified in IEC 61000-4-5 and ANSI C62.41 & 45
Generated by modules CWM 3450 and CWM 3650

Ring Wave Surge

As specified in IEC 61000-4-12 and ANSI C62.41 & 45
Generated by modules RWM 3652

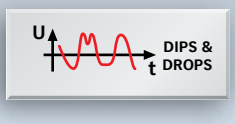
Telecom Wave Surge

As specified in IEC 61000-4-5,
ITU-T K. series and ANSI TIA 968-B
Generated by modules TSM 3751



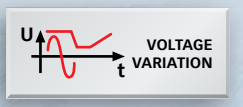
Electric Fast Transient / Burst

As specified in IEC 61000-4-4
Generated by module FTM 3425



Dips and Drops

As specified in IEC 61000-4-11 and 29
Generated by module PQM 3403 and INA 6501, INA 6502, and VAR 3005



Voltage Variations

As specified in IEC 61000-4-11
Generated by module PQM 3403 and VAR 3005

Pulsed Magnetic Fields

As specified in IEC 61000-4-9
Generated by module CWM 3450 or CWM 3650
Requires INA 701, 702 or 703 antenna and INA 752

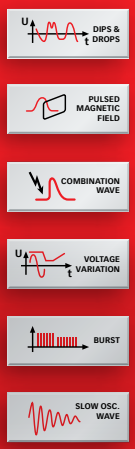
Power Frequency Magnetic Fields

As specified in IEC 61000-4-8
Generated by module MFO 6501 or 6502
Requires INA 701, 702, or 703 antenna

Slow Oscillatory Waves

As specified in IEC 61000-4-18 and ANSI C37.90.1
Generated by module SOM 3456

NSG 3040 SERIES



NSG 3060 SERIES

MODULARITY IN SERIES

Variable configurations for various applications. NSG 3000 systems are available "à la carte." A basic mainframe, pre-wired and tested for all modules, can be fitted with only the modules required for a specific application, giving the best value for the money. If additional modules are required they can be installed by the end user as easily as fitting an interface board into a PC.

Single function instruments, containing only the functionality required, are available at a lower cost. These systems can also be returned to the factory for upgrades if user needs change.

NSG 3040	Mainframe	Display unit	HV module	CDN module	DDV module	CWS module	EFT module	SOW module
NSG 3040-IEC	■	■	■	■	■	■	■	
NSG 3040-MF	■	■	■	■				
NSG 3040-MF-ERC	■		■	■				
NSG 3040-MF-EPO	■	■	■					
NSG 3040-MF-PRO	■		■					
PQM 3403					■			
CWM 3450						■		
FTM 3425							■	
SOM 3456								■
NSG 3040-DDV	■	■	■		■			
NSG 3040-CWS	■	■	■	■		■		
NSG 3040-EFT	■	■	■	■			■	
NSG 3040-SOW	■	■	■	■				■
NSG 3040-C3790	■	■	■	■			■	■
NSG 3040-EXT	■							
NSG 3040-EFT-CWS-EPO	■	■	■			■	■	

NSG 3060	Mainframe	Display unit	HV module	CWS module	RWS module	EFT module	TSM module
NSG 3060-MF	■	■	■				
NSG 3060-MF-ERC	■		■				
CWM 3650				■			
RWM 3652					■		
FTM 3425						■	
TSM 3751							■
NSG 3060-ANSI	■	■	■	■	■	■	
NSG 3060-ITU	■	■	■	■		■	■
NSG 3060-EXT	■		■				
NSG 3060-TS-EXT	■		■				■

CDN 3043 **CDN 3061** **CDN 3063** **CDN 3083**	Mainframe	EUT power switch	Phase rotation detector	Temperature monitoring	Regulated fan speed	Overload protection	CWS and RWS coupling	EFT coupling	Pulse voltage	EUT supply (AC)	EUT supply (DC)
CDN 3061-S16	■	■		■	■	■	■		6.6 kV	270 V / 16 A	125 V / 16 A*
CDN 3061-C16	■	■		■	■	■	■	■	6.6 kV	270 V / 16 A	125 V / 16 A*
CDN 3043-S16	■	■	■	■	■	■	■		4.8 kV	480 V / 16 A	125 V / 16 A*
CDN 3043-C16	■	■	■	■	■	■	■	■	4.8 kV	480 V / 16 A	125 V / 16 A*
CDN 3043-S32	■	■	■	■	■	■	■		4.8 kV	480 V / 32 A	125 V / 32 A*
CDN 3043-C32	■	■	■	■	■	■	■	■	4.8 kV	480 V / 32 A	125 V / 32 A*
CDN 3063-S16	■	■	■	■	■	■	■		6.6 kV	480 V / 16 A	125 V / 16 A*
CDN 3063-C16	■	■	■	■	■	■	■	■	6.6 kV	480 V / 16 A	125 V / 16 A*
CDN 3063-S32	■	■	■	■	■	■	■		6.6 kV	480 V / 32 A	125 V / 32 A*
CDN 3063-B32	■	■	■	■	■	■		■	6.6 kV	480 V / 32 A	125 V / 32 A*
CDN 3063-C32	■	■	■	■	■	■	■	■	6.6 kV	480 V / 32 A	125 V / 32 A*
CDN 3063-S63	■	■	■	■	■	■	■		6.6 kV	480 V / 63 A	125 V / 63 A*
CDN 3063-S100	■	■	■	■	■	■	■		6.6 kV	480 V / 100 A	125 V / 100 A*
CDN 3083-B100	■			■				■	8.8 kV	690 V / 100 A	1000 V / 100 A
CDN 3083-B200	■			■				■	8.8 kV	690 V / 200 A	1000 V / 200 A
CDN 3083-S100	■			■			■		8.8 kV	620 V / 100 A	800 V / 100 A

* DC ratings 125 VDC up to nominal current rating – 7 A up to 225 V DC

THE NSG 3040 SERIES

BENEFIT

NSG 3040

- Intuitive interface
- Plug-and-play modules
- Status LEDs
- Safety connectors
- Silent operation

BEST IN TEST

BIG THINGS
COME IN SMALL PACKAGES

The versatile system for testing “indoor” appliances

4 kV is the highest test level for transients testing required in the basic standards of the IEC 61000-4-x series as well as in the multitude of resulting product standards for any equipment used in indoor locations. The NSG 3040 series always offers a minimum of 10% more than the highest required level, and is ideally suited to test the following types of equipment:

More than just a combination generator: Available in various configurations and accompanied by a multitude of accessories, the versatile NSG 3040 series offers the best value for the money to fit nearly all applications and budgets.

FLEXIBILITY

To match any budget: The NSG 3040 is available in a variety of configurations to provide either wide application coverage or to address specific applications.

Combined Function Generators

The high-end solution

NSG 3040-IEC: Fitted with EFT, CWM and PQM modules. Featuring all advantages. With a built-in color touch panel display, wheel with step size keys and start-stop-pause keys, this system has full test performance capabilities.

For Exclusive Remote Control (ERC series): For users on a restricted budget, the ERC series is an NSG 3040 without the sophisticated user interface, and may be controlled using a PC running WIN 3000 software. It is ready to be configured with any combination of modules required.

Exclusive Pulse Output (EPO series): For applications which do not require a Coupling/Decoupling Network (CDN), the EPO series is an NSG 3040 without the built-in CDN. It is ready to be configured with any combination of generator modules required.

Single Function Generators

NSG 3040-DDV: Single function generator for dips, drops and variations.

- Complies with and exceeds requirements of IEC 61000-4-11 & 29
- For variations an external voltage source is required – see step transformers and variac section in "ACCESSORIES."

NSG 3040-EFT: Single function generator for EFT / burst pulses.

- Complies with and exceeds requirements of IEC 61000-4-4
- For data line coupling an additional coupling clamp is required – see "ACCESSORIES."

NSG 3040-CWS: Single function generator for Combination Wave Surges.

- Complies with and exceeds requirements of IEC 61000-4-5
- Complies with and exceeds requirements of IEC 61000-4-9 when used with an INA 702 antenna
- For data line coupling an additional coupling/decoupling network is required, see "ACCESSORIES."

NSG 3040-SOW: Single function generator for Slow Oscillatory Waves.

- Complies with and exceeds requirements of IEC 61000-4-18 and ANSI C37.90

SPECIFICATIONS

Dips, Drops and Variations Module PQM 3403

IEC 61000-4-11
IEC 61000-4-29

AC voltage	Up to 265 V RMS
AC current	Up to 16 A
DC voltage	Up to 300 V
DC current	Up to 16 A
Frequency	DC to 400 Hz
Switching time	1 to 5 µs
Inrush current	› 500 A
Repetition rate	40 µs to several hours
Synchronization	0 to 359° in 1° steps

Electrical Fast Transients Module FTM 3425

IEC 61000-4-4

Voltage	200 to 4800 V
Pulse shape	5/50 ns
Source impedance	50 Ω
Repetition time	1 ms to 70 min
Burst duration	1 µs to 1999 sec.
Burst frequency	100 Hz to 1000 kHz
Synchronization	0 to 359° in 1° steps
Test duration	1 sec. to continuous

Combination Wave Surge Module CWM 3450

IEC 61000-4-5
IEC 61000-4-9

Voltage	200 to 4400 V
Current	100 to 2200 A
Pulse shape	1.2/50 µs – 8/20 µs
Source impedance	2 Ω and 12 Ω
Repetition time	10 to 600 sec.
Synchronization	0 to 359° in 1° steps
Test duration	1 pulse to continuous

Extension Unit with Telecom Surge NSG 3060-TS-EXT

IEC 61000-4-5
ITU-T K. series
ANSI TIA 968-B

Voltage	200 to 7700 V
Current	5 to 513 A
Pulse shape	10/700 µs (9/720 µs) – 5/320 µs
Source impedance	15 Ω and 40 Ω
Repetition time	10 to 600 sec.
Synchronization	0 to 359° in 1° steps
Test duration	1 pulse to continuous

Mainframe

User Interface

Display	7.2” color TFT touch panel
Wheel	With step size keys
Start-stop-pause	Keys with color back light
Status LEDs	3 different colors
Test libraries	Standard tests, user tests
Parameter ramping	Voltage, frequency, phase angle, etc.
Test steps/sequences	Up to 20 steps per test

Coupling/Decoupling Network

Voltage	Up to 265 V RMS AC and 300 V DC
Current	Up to 16 A AC or DC
Frequency	DC to 400 Hz
Coupling/decoupling	Per IEC 61000-4-4 and 5
Burst pulse output	SHV plug
Surge pulse output	Floating, shielded
Connection to ground plane	On front panel, per galvanized copper braid

Power Supply

Mains supply	Universal 85–265 VAC, 50/60 Hz
Frequency	50/60 Hz
Fuses	2 x 3.15 AT

General

PC interface	LAN – S/FTP 2 m cable included
System interface	25 way twisted pair, interbus, synchronization bus, EUT fail, EUT power ON/OFF, pulse enable, interlock etc.
Cooling	Thermally regulated fans (low noise)
PC software	Included WIN 3000 for Windows 7
Safety	Per EN 61010
Calibration	Traceable calibration certificate included
Accessories	Refer to “ACCESSORIES”

THE NSG 3060 SERIES

BENEFIT

NSG 3060

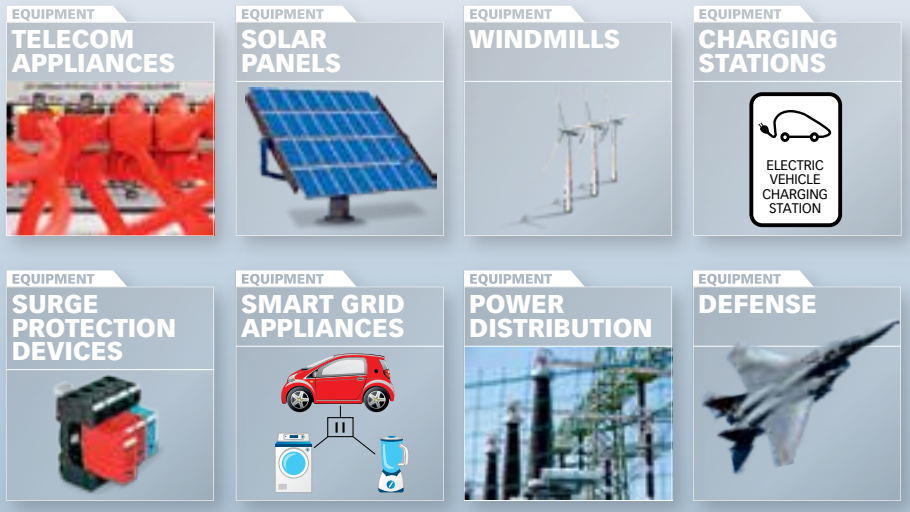
- Fully ANSI compatible
- Modular, expandable system
- Surge voltage to 6.6 kV for overtesting
- Easy-to-use 7.2" color touch screen
- IEC and ANSI coupling methods

BIGGER THINGS COME IN SMALL PACKAGES

Outdoor appliances need higher test levels

While indoor equipment is “protected” by buildings and installed protective devices, outdoor appliances are often subjected to more intensive EMC disturbances. Therefore the test requirements for outdoor equipment are generally higher.

The NSG 3060 series covers basic surge and transients testing for outdoor equipment as required in ANSI IEEE C62.41 & 45, ITU-T K. and other dedicated product standards.



More than just a combination generator. Available in a various configurations and accompanied by a multitude of accessories, the NSG 3060 series is a comprehensive family which offers the best value for the money for every application and budget.

FLEXIBILITY

To match any budget: NSG 3060 instrument configurations are available to cover every need between a high-end/multiple application solution and a single function system.

Combined Function Generators

The high-end solution for ANSI IEEE C62.41 & 45 testing

NSG 3060-ANSI: Fitted with combination wave surge, ring wave surge and EFT modules. Featuring all advantages. With a built-in 7.2" color display, touch panel, wheel with step size keys and start-stop-pause keys, this system has full test performance capabilities.

The NSG 3060 is also available *"à la carte."*

The high-end solution for ITU-T K. series testing

NSG 3060-ITU: Fitted with combination wave surge, telecom wave surge and EFT modules. Featuring all advantages. With a built-in 7.2" color display, touch panel, wheel with step size keys and start-stop-pause keys, this system has full test performance capabilities.

For Exclusive Remote Control (ERC series): For users who will rely on the included WIN 3000 software or the full-featured WIN 3000 SDR, this low-cost NSG 3000 is available without the user interface.

Extensions and Coupling/Decoupling Networks

NSG 3060-TS-EXT: Extension unit containing telecom wave surge.

- Complies with and exceeds requirements of IEC 61000-4-5 and ITU-T K. series
- Extension unit to be connected to and driven by the NSG 3040 or NSG 3060 user interface

CDN 3061: Single phase CDNs for NSG 3060 series.

- Complies with and exceeds requirements of IEC 61000-4-4,5,12
  Complies with and exceeds requirements of ANSI C62.41 & 45
- Can be fitted with module for IEC 61000-4-11 & 29
- To test single phase equipment up to 265 V / 16 A
- Available in single function coupler versions

CDN 3063 – 16 A and 32 A versions: Three-phase CDNs.

- Complies with and exceeds requirements of IEC 61000-4-4,5,12
  Complies with and exceeds requirements of ANSI C62.41 & 45
- To test three-phase equipment up to 480 V / 32 A
- Available in single function coupler versions

CDN 3063 – 63 A and 100 A versions:

- Three-phase high current CDNs
- Complies with and exceeds requirements of IEC 61000-4-4,5,12
  Complies with and exceeds requirements of ANSI C62.41 & 45
- To test three-phase equipment up to 480 V / 100 A
- Available in single function coupler versions

SPECIFICATIONS

Dips, Drops and Variations Module
PQM 3403

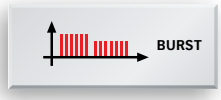
IEC 61000-4-11
IEC 61000-4-29

AC voltage	Up to 265 V RMS
AC current	Up to 16 A
DC voltage	Up to 300 V
DC current	Up to 16 A
Frequency	DC to 400 Hz
Switching time	1 to 5 µs
Inrush current	› 500 A
Repetition rate	40 µs to several hours
Synchronization	0 to 359° in 1° steps

Electrical Fast Transients Module
FTM 3425-ext

IEC 61000-4-4

Voltage	200 to 4800 V
Pulse shape	5/50 ns
Source impedance	50 Ω
Repetition time	1 ms to 70 min
Burst duration	1 µs to 1999 sec.
Burst frequency	100 Hz to 1000 kHz
Synchronization	0 to 359° in 1° steps
Test duration	1 sec. to continuous



Combination Wave Surge Module
CWM 3650

IEC 61000-4-5
IEC 61000-4-9
ANSI IEEE C62.41 & 45

Voltage	200 to 6600 V
Current	100 to 3300 A
Pulse shape	1.2/50 µs – 8/20 µs
Source impedance	2 Ω and 12 Ω
Repetition time	10 to 600 sec.
Synchronization	0 to 359° in 1° steps
Test duration	1 pulse to continuous

Telecom Wave Surge Module
TSM 3751

IEC 61000-4-5
ITU-T K. series
ANSI TIA 968-B

Voltage	200 to 7700 V
Current	5 to 500 A
Pulse shape	10/700 µs (9/720 µs) – 5/320 µs
Source impedance	15 Ω and 40 Ω
Repetition time	10 to 600 sec.
Synchronization	0 to 359° in 1° steps
Test duration	1 pulse to continuous

Ring Wave Surge Module
RWM 3652

IEC 61000-4-12
ANSI IEEE C62.41&45

Voltage	200 to 6600 V
Current	5 to 550 A
Pulse shape	100 kHz ring wave
Source impedance	12 Ω and 30 Ω
Repetition time	10 to 600 sec.
Synchronization	0 to 359° in 1° steps
Test duration	1 pulse to continuous

Mainframe

User Interface

Display	7.2” color TFT touch panel
Wheel	With step size keys
Start-stop-pause	Keys with color back light
Status LEDS	3 different colors
Test libraries	Standard tests, user tests
Parameter ramping	Voltage, frequency, phase angle, etc.
Test steps/sequences	Up to 20 steps per test

Power Supply

Mains supply	Universal 85–265 VAC, 50/60 Hz
Frequency	50/60 Hz
Fuses	2 x 3.15 AT

General

PC interface	LAN – S/FTP 2 m cable included
System interface	25 way twisted pairs, interbus, synchronization bus, EUT fail, EUT power ON/OFF, pulse enable, interlock etc.
Cooling	Thermally regulated fans (low noise)
PC software	Included WIN 3000 for Windows 7
Safety	Per EN 61010
Calibration	Traceable calibration certificate included
Accessories	Refer to “ACCESSORIES”

COUPLING/DECOUPLING NETWORKS (CDNs)

BENEFIT

CDN

- EUT power ON/OFF switching
- Overload protection
- HV safety plugs for pulse interconnection
- Touch safe terminals and safety terminal tool
- Temperature-controlled fans
- Phase angle rotation detection
- Real ANSI coupling

Focus on performance and safety

All generators require a Coupling/Decoupling Network (CDN) for testing mains-powered products. CDN requirements vary in relation to the supply current of the EUT. Teseq® offers a multitude of CDN models, from single-phase 16 A to three-phase 100 A and more, to offer optimal price/performance solutions for each application.

Safety first: Running EMC tests means firing pulses of several kilovolts onto mains supply voltages. As both mains and surge pulses can be lethal, Teseq® has taken particular care to design safe CDNs for the NSG 3000 series.

SAFETY ABOVE ALL

Accuracy, reliability and user convenience – all NSG 3000 series CDNs have the following features:

Manual Through user intervention
Programmable Through front panel or WIN 3000, at any time or at test end
Automatic In case of CDN overload

- EUT current is not exactly known
- EUT inrush or peak currents exceed nominal CDN ratings
- EUT fails

Teseq® CDNs will switch off EUT power before being damaged by overload

Pulses of up to several thousand volts can be hazardous.
User safety through dedicated and certified high-voltage plugs.

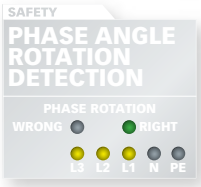
Shielded interconnection
Prevents radiation of unwanted fields

At the EUT terminals the high-voltage pulses are coupled onto mains voltage, and peaks > 7000 V can be present.
Specially designed range of EUT connection terminals

No isolated version of Allen wrench commercially available.
Teseq-designed isolated terminal tool – no adapter plugs required.

Noise reduction
Low speed, low noise and low energy consumption in standby mode.

Cooling on demand
Fans will speed up when cooling is required.



Input supply presence indication
For input supply verification

Input phase rotation indication
For correct phase sequencing

CDN 3061 and CDN 3063 series only – when used with NSG 3060 series

ANSI-specific operation exceeds IEC requirements.
Full ANSI compliance

Pulse amplitude must vary according to the coupling phase angle.
Advanced NSG 3000 firmware will adjust this automatically with no user intervention.

MORE FLEXIBILITY

Coupling/Decoupling Network Models for the NSG 3040 Series

CDN 3043 series for NSG 3040 generators: Several CDN configurations are available to cover every need from a high-end/ multiple application solution to a single function system.

Cxx versions: combined for EFT and combination wave surges

EUT voltage (AC)	480 V AC RMS	
EUT current (AC)	16 A	CDN 3043-C16
	32 A	CDN 3043-C32
Ratings in DC	125 V DC – full current range	
	225 V DC – up to 7 A	
Surge coupling	Up to 4.4 kV – 2.2 kA	
EFT coupling	Up to 4.8 kV	
EUT supply input	Switchable: manual, programmable phase rotation detection	
	Overload protection	
Cooling	Active	

Sxx versions: for combination wave surges

EUT voltage (AC)	480 V AC RMS	
EUT current (AC)	16 A	CDN 3043-S16
	32 A	CDN 3043-S32
Ratings in DC	125 V DC – full current range	
	225 V DC – up to 7 A	
Surge coupling	Up to 4.4 kV – 2.2 kA	
EUT supply input	Switchable: manual, programmable phase rotation detection	
	Overload protection	
Cooling	Active	

Bxx versions: for EFT pulses

EUT voltage (AC)	480 V AC RMS	
EUT current (AC)	16 A	CDN 3043-B16
	32 A	CDN 3043-B32
Ratings in DC	125 V DC – full current range	
	225 V DC – up to 7 A	
EFT coupling	Up to 4.8 kV	
EUT supply input	Switchable: manual, programmable phase rotation detection	
	Overload protection	
Cooling	Active	

CDN 3061 series: Single-Phase Coupling/ Decoupling Networks with Optional Dips and Drops Module (-PQT)

Coupling/Decoupling Network

EUT voltage (AC)	270 V AC RMS
EUT current (AC)	16 A
Ratings in DC	125 V DC – 16 A 225 V DC – 7 A
Surge coupling	Up to 6.6 kV – 3.3 kA
EFT coupling	Up to 4.8 kV
EUT supply input	Switchable: manual, programmable phase rotation detection overload protection
Cooling	Active

CDN 3063 series for NSG 3060 Generators which also work with the NSG 3040 Series

16 A and 32 A Versions:

EUT voltage (AC)	480 V AC RMS	
EUT current (AC)	16 A	CDN 3063-x16
	32 A	CDN 3063-x32
Ratings in DC	125 V DC – full current range 225 V DC – up to 7 A	
Combination wave surge coupling	Up to 6.6 kV – 3.3 kA	
Ring wave surge coupling	Up to 6.6 kV – 550 A	
EFT coupling	Up to 4.8 kV	
EUT supply input	Switchable: manual, programmable phase rotation detection overload protection	
Cooling	Active	
Combined EFT, CW, RW Surges	16 A	CDN 3063-C16
	32 A	CDN 3063-C32
Combined CW and RW surges	16 A	CDN 3063-S16
	32 A	CDN 3063-S32
EFT / burst only	16 A	CDN 3063-B16
	32 A	CDN 3063-B32
Compliance	IEC 61000-4-4,5,12 ANSI C 62.41 & 45	

63 A and 100 A Versions:

EUT voltage (AC)	480 V AC RMS	
EUT current (AC)	63 A	CDN 3063-x63
	100 A	CDN 3063-x100
Ratings in DC	125 V DC – full current range 225 V DC – up to 7 A	
Combination wave surge coupling	Up to 6.6 kV – 3.3 kA	
Ring wave surge coupling	Up to 6.6 kV – 550 A	
EFT coupling	Up to 4.8 kV	
EUT supply input	Switchable: manual, programmable phase rotation detection overload protection	
Cooling	Active	
Combined CW and RW surges	63 A	CDN 3063-S63
	100 A	CDN 3063-S100
Compliance	IEC 61000-4-4,5,12 ANSI C 62.41 & 45	

CONVENIENCE ENHANCES PERFORMANCE

WIN 3000 series PC control software: performance for any budget.

PC software included for all NSG 3000 series –
for remote control via LAN/Ethernet.

- Features basic settings, parameter ramping, stepping, etc.
- For Windows Server 2003, Windows Server 2008, Windows Vista, Windows XP service pack 2, Windows 7

Professional version of PC software for NSG 3000 series –
for remote control via LAN/Ethernet.

- Features basic settings, parameter ramping, stepping, etc.
- Includes test library covering most basic and generic standards.
- Includes test sequencer, real-time report facility and user-dialog facility.

For Windows Server 2003, Windows Server 2008, Windows Vista, Windows XP service pack 2, Windows 7

WIN 3000 SOFTWARE

WIN 3000 is the fourth generation of Teseq® software dedicated to EMI testing. It features basic instrument control capabilities, extended by functionality which is the result of 20 years of software application development and user feedback. Even very complex sequences including various types of tests, multiple parameter ramping, stepping, user dialogs and interactions remain intuitive to set up and easy to supervise. The real-time report generator allows users to generate reports during the test, and to add comments, pictures and graphs so that the test report is generated at the same moment the test finishes.

EVERYTHING ON ONE SCREEN

There is no way to briefly describe all the features of the WIN 3000 series, but one thing is certain: there are enough to address any application imaginable.

Main WIN 3000 features:

Networkability: WIN 3000 drives the NSG 3000 series via a LAN port.

The main advantage of LAN connectivity is its immunity against EMI, which is superior to that of USB or other connection types.

The instrument can be controlled by any networked PC, providing convenient access. Also, test libraries can be stored and maintained in a single location, and can be accessed by any authorized user via the network.

Test Library: covers most basic, generic and product-specific standards.

Customizable test library can be edited.
Test library can be saved on a server so that a single central library can be used for a multitude of workstations.

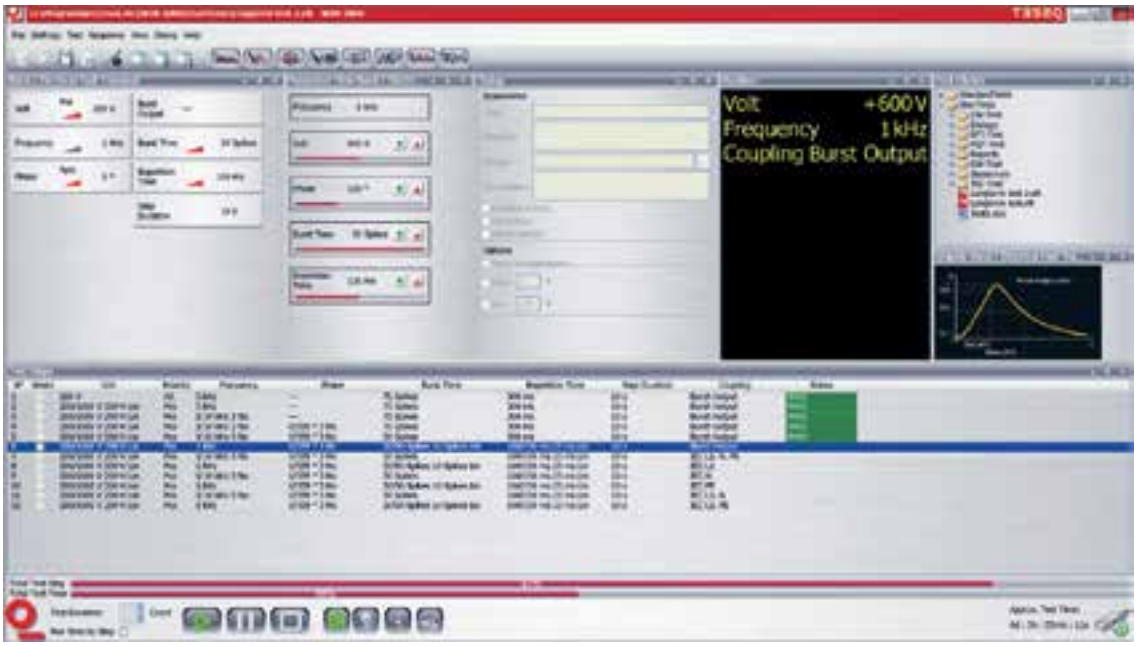
Regular test library updates are distributed free of charge.

Parameter setting: Easy to use controls on front panel.
Click the parameter field to set it to the desired value.

Several parameters can be ramped simultaneously.

Multiple parameter ramping: Ramping priorities can be set by dragging and dropping the fields to any position in the sequence.

In runtime mode a progress bar and a numerical value show the ramping status of each parameter.

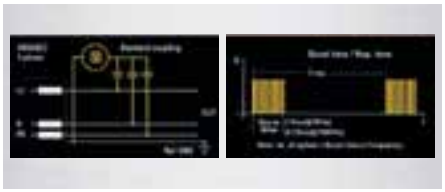


WIN 3000 can be customized to show any control combination.

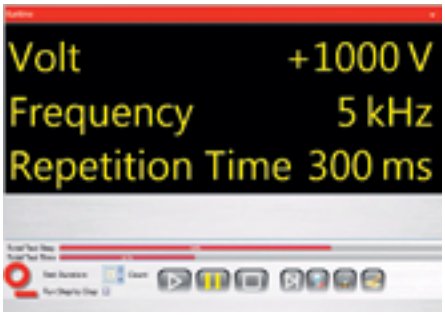
Test steps and sequences: WIN 3000 makes it easy to create complex test sequences. While individual test steps use only one type of pulse, test sequences can include several different pulse types. Dialog boxes walk the user throughout the test prompting for information or manual interaction as the test sequence progresses.

Multiple parameter ramps can be embedded in test steps, which can then be embedded in test sequences.

Real-time reporting: When a test starts, MS Word opens the selected user-editable template and logs test activity in real time. The user can access the report at any time during the test to add comments or pictures.



User assistance/graphics: WIN 3000 provides numerous graphics to explain EMC-specific parameters. The software can be easily operated without a user manual.



Runtime information: The runtime information screen can be customized to include critical test parameters. When used in full-screen mode this screen is visible even when the user is far from the control PC.

The runtime information screen includes a test progress bar for each individual test step in the sequence as well as large start-stop-pause keys.

ACCESSORIES

The best generator is nothing without a complete set of accessories. A wide range of accessories are available for NSG 300 series – for remote control, for verification and calibration, and for extension and for convenience.

WIDE SELECTION

Variable Voltage Sources

INA 6501 and 6502:

Single supply sources for dips, drops and stepped (0, 40%, 70%, 80%) variations testing of single-phase – up to 250 V/16 A equipment per IEC 61000-4-11.

Internal overload protection and EUT power ON/OFF function.

INA 6501: Manual control
INA 6502: Automatic control from NSG 3000 series

VAR 3005:

Dual supply source for dips, drops and stepless variations testing of single-phase – up to 265 V/16 A equipment per IEC 61000-4-11.

For automatic control from NSG 3000 series.

With internal overload/overtemp protections and programmable EUT power ON/OFF function.

VAR 3005-S16: Single variac
VAR 3005-D16: Double variac

Extension Chassis

NSG 3060-TS-EXT: Extension unit containing Telecom wave surge.

Complies with and exceeds requirements of IEC 61000-4-5 and ITU-T K. series.

Extension unit to be connected to and driven by the NSG 3040 or NSG 3060 user interface.

EXTENDING STANDARDS COVERAGE

For Magnetic Field Testing

Data Line Couplers

MFO 6501 and MFO 6502:

Synthesized sine wave sources with a power amplifier. Designed for use with INA 701, 702 or 703 antennas for power line frequency (50 and 60 Hz) magnetic field tests up to 3.3 A/m (with INA 701), 33 A/m (with INA 702) and 120 A/m as specified in IEC 61000-4-8.

MFO 6501: Manual control
MFO 6502: Automatic control from NSG 3000 series

POWER MAGNETIC FIELD 50/60 Hz

INA 701 and INA 702:

Magnetic field coils for fields up to 40 A/m continuous, 330 A/m short term (5 seconds), 1200 A/m pulsed (8/20 µs).

Size: 1 × 1 m as specified in IEC 61000-4-8 and -9

Includes stand with socket, rotation mechanism with brake, vertical positioning mechanism, cable for connection to MFO 6501 or 6502. Can be used with NSG 1007 sources and INA 2141 using an optional adapter cable.

INA 701: Single turn
INA 702: Multiturn – 11 turns with tap off at turn 1, 5, 11

PULSED MAGNETIC FIELD

INA 703:

Multiturn magnetic field coil for fields up to 330 A/m continuous, 1100 A short term (5 seconds), to be used with NSG 1007 sources plus INA 2141 and WIN 2120 software, 1200 A/m pulsed (8/20 µs).

Size: 1 × 1 m as specified in IEC 61000-4-8 and -9. Includes double stand with base on wheels with brakes, rotation mechanism with 3 position brakes, vertical adjustment mechanism.

Multiturn – 37 turns with tap off at turn 1, 5, 37

CDN 3425: Burst EFT coupling clamp per IEC 61000-4-4.

INA 3825: Safety cover with interlock for CDN 3425 interlock cable.

CDN 117: Coupling/decoupling network for surge pulses on low speed data lines. For unsymetrically operated data lines: 2 channels.

CDN 118: Coupling/decoupling network for surge pulses on data lines. For symmetrically operated data lines: 4 channels (2 twisted pairs).

CDN 3028-UTP: Coupling/decoupling network for surge pulses on LAN/Ethernet lines up to 1 GbE.
For symmetrically operated data lines: 8 channels (4 twisted pairs).

Verification and Calibration

CAS 3025:
Calibration set for burst/EFT. Consists of:
INA 265A: 50 Ω/1000 to 1 terminator/attenuator
INA 266: 1000 Ω/2000 to 1 terminator/attenuator

MD 200 and MD 200A:
1000:1 high-voltage differential probes
MD 200: 3.5 kV common mode / 7 kV differential mode
MD 200A: 7 kV common mode / 7 kV differential mode

MD 300:
Current sensor for surge current measurement. Ratio of 0.002 V/A at 1M Ω and 0.001 V/A at 50 Ω. For surge peak currents up to 5 kA.

Adapters and Plugs

For EFT calibration at CDN output:
INA 3237: for NSG 3040 and CDN 3061 series (second edition and later)
INA 3239: for CDN 3043 and CDN 3063 series
INA 3241: for CDN 3083-B100 and -B200

For surge calibration at CDN output:
INA 3233: for NSG 3040 and CDN 3061 series (second edition and later)
INA 3235: for CDN 3043 and CDN 3063 series
INA 163: for CDN 3083-S100 and -S200

Burst output plug adapter and cables:
INA 6546: SHV plug (Burst Out) for all Teseq® burst generators
INA 6547: 20 kV coax cable, length 1 m
INA 6548: 20 kV coax cable, length 5 m

Surge output plug adapters and cable:
INA 3236: Surge out to safety banana, 1 plug to red banana, 1 to black
INA 6544: HV-plug set (Surge Out) for cable diameter 10.3 mm
INA 6545: HV-plug set (Surge Out) for cable diameter 5.1 mm
402-741: RG 213 – high-voltage coaxial cable, 2 m

Safety

INA 3001: Warning lamp

Mechanics

Rack Mounting brackets:
INA 166: Rack mounting brackets (4 U) for NSG 3040 series
INA 167: Rack mounting brackets (7 U) for NSG 3060 series

Trolley:
INA 3000: Trolley for NSG 3000 series. Convenient accessory to get stand-alone instruments stacked and mobile through large casters. Static load < 150 kg

TESEQ® OBSERVES ALL THE STANDARDS

	NSG 3040	NSG 3060	CDN 3043	CDN 3061	CDN 3063	CDN 3083	CDN 117	CDN 118
Laws and Directives								
EMC Directives	■	■	■	■	■	■	■	■
UN ECE R10 (Automotive)	■	■	■	■	■	■	■	■
Basic Standards								
IEC/EN 61000-4-4	■	■	■	■	■	■		
IEC/EN 61000-4-5	■	■	■	■	■	■	■	■
IEC/EN 61000-4-8	■	■						
IEC/EN 61000-4-9	■	■						
IEC/EN 61000-4-10	■	■						
IEC/EN 61000-4-11	■	■		■				
IEC/EN 61000-4-12		■		■	■	■	■	■
IEC/EN 61000-4-18	■	■						
IEC/EN 61000-4-29	■	■		■				
ANSI/IEEE Standards								
ANSI/IEEE C62.41	■	■		■	■	■		
Generic Standards								
EN 61000-6-1	■	■	■	■	■	■	■	■
EN 61000-6-2	■	■	■	■	■	■	■	■
Product Standards								
EN 50370	■	■	■	■	■	■	■	■
EN 61643	■	■	■	■	■	■		
EN 300386	■	■	■	■	■	■	■	■
EN 301489	■	■	■	■	■	■	■	■
FCC 97-270 (part 68)		■					■	■
IEC 60255	■	■	■	■	■	■	■	■
IEC 60601	■	■		■				
IEC 61009-1		■		■	■	■		
IEC 61326	■	■	■	■	■	■	■	■
IEC 61850-3	■	■	■	■	■	■	■	■
Telecom Standards								
ITU-T K.12	■	■					■	■
ITU-T K.20	■	■					■	■
ITU-T K.21	■	■					■	■
ITU-T K.28	■	■					■	■
ITU-T K.41	■	■					■	■
ITU-T K.44	■	■					■	■
ITU-T K.45	■	■					■	■

... and many others

	CDN 3425	INA 701	INA 702	INA 703	INA 6501	INA 6502	MFO 6501	MFO 6502	VAR 3005
Laws and Directives									
EMC Directives	■	■	■	■	■	■	■	■	■
UN ECE R10 (Automotive)	■				■	■	■	■	■
Basic Standards									
IEC/EN 61000-4-4	■								
IEC/EN 61000-4-5									
IEC/EN 61000-4-8		■	■	■			■	■	
IEC/EN 61000-4-9		■	■	■					
IEC/EN 61000-4-10		■	■	■					
IEC/EN 61000-4-11					■	■			■
IEC/EN 61000-4-12									
IEC/EN 61000-4-18									
IEC/EN 61000-4-29									
ANSI/IEEE Standards									
ANSI/IEEE C62.41									
Generic Standards									
EN 61000-6-1	■	■	■	■	■	■	■	■	■
EN 61000-6-2	■	■	■	■	■	■	■	■	■
Product Standards									
EN 50370	■	■	■	■	■	■	■	■	■
EN 61643									
EN 300386	■				■	■			■
EN 301489	■				■	■			■
FCC 97-270 (part 68)									
IEC 60255	■								
IEC 60601				■	■	■			■
IEC 61009-1									
IEC 61326	■	■	■	■	■	■	■	■	■
IEC 61850-3	■	■	■	■	■	■	■	■	■
Telecom Standards									
ITU-T K.12									
ITU-T K.20									
ITU-T K.21									
ITU-T K.28									
ITU-T K.41									
ITU-T K.44									
ITU-T K.45									

… and many others

A FULL RANGE OF EMC SERVICES

With more than 40 years of experience Teseq® has the resources to address any type of EMC challenge. Our extensive range of services and skills can be tailored to meet your specific needs.

Consultation and training. Our experts can provide support for a new lab, to expand it for additional tests or to strengthen your staff's knowledge.

- EMC consultation
- Training courses and seminars

EMC training is available on request in our labs or on-site.

Calibration services.

- 7 Teseq-owned labs worldwide
- Accredited calibration
- Traceable calibration
- On-site calibration

Software and automation. Teseq's Compliance 5 lab automation software can easily be customized to your processes for higher efficiency and throughput in your lab.

- Test methodology advice
- Test automation software development
- Fast and easy customization
- Maintenance contracts

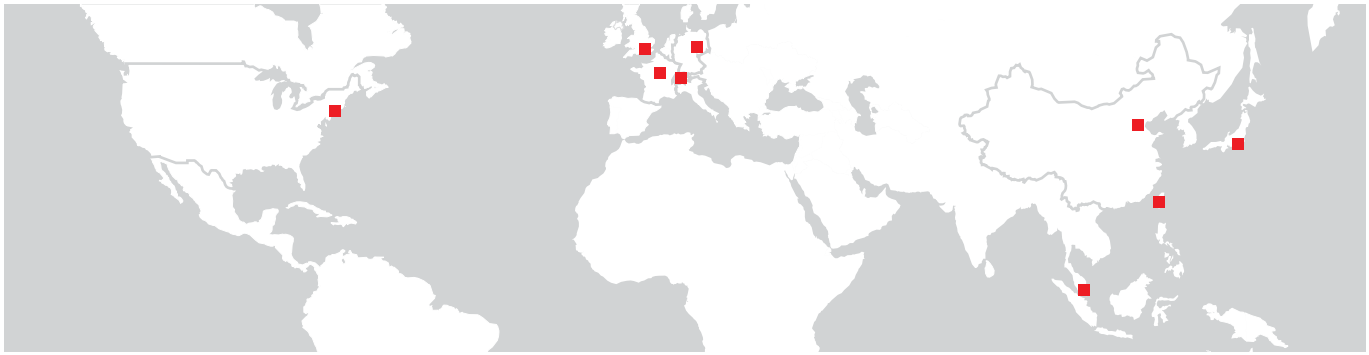
System integration. We design and build turnkey EMC systems to precisely fit your test requirements, budget and time frame.

- EMC system specification
- EMC system design and implementation services
- EMC system installation and training
- EMC system upgrades

EMC INSTRUMENTATION AND SYSTEMS FOR ANY BUDGET.

Teseq® offers the world's most comprehensive range of EMC systems for immunity and emissions testing. We take great pride in our world-class research and development program, backed by state-of-the-art global manufacturing. Our membership in the relevant international committees demonstrates our commitment to the industry. Our network of direct sales offices, representatives and distributors offers market leading EMC expertise tailored to local needs in more than 30 different countries.

Our unique "modular" approach to EMC is focused on our customers' business needs. By breaking down the barriers between traditionally separate test functions we can optimize the test process to help you bring products to market more quickly.



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691-283A July 2012

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TESEQ

Advanced Test Solutions for EMC