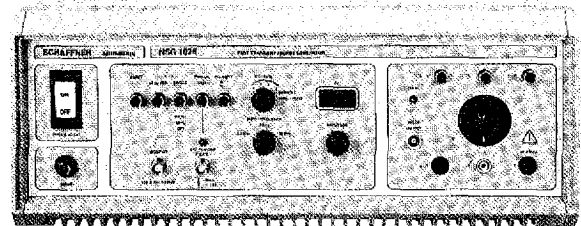


Fast Transient/Burst Generator NSG 1025

- **Conforms to IEC 801-4 etc.**
- **Maintenance-free solid-state HV switch**
- **Continuous operation without re-calibration**
- **Test voltages up to 4400V**
- **Burst frequencies up to 10 KHz**
- **Single pulse capability**
- **Integrated coupling network**



Standards such as the IEC 801-4, DIN/VDE 0843-4, CENELEC HD 481.4, etc. call for interference voltage tests to be carried out on instruments and systems using pulse bursts similar to those that occur in practice when electrical equipment is switched on or off, or when it is plugged in or disconnected. Electronic circuits of all types, especially modern digital equipment, are very sensitive to these types of interference pulses.

The NSG 1025 Generator simulates such interference sources. The specifications of the pertinent Standards are met and, particularly where precision and reproducibility are concerned, are often exceeded. A new type of solid-state high voltage switch ensures excellent pulse parameter stability and maintenance-free continuous operation.

The instrument is equally suitable for laboratory and field tests as well as for routine testing for quality assurance purposes. Routine tests are made easier by a selection switch with fixed settings for the pulse parameters in conformity with the test classes contained in IEC 801-4. An additional switch position

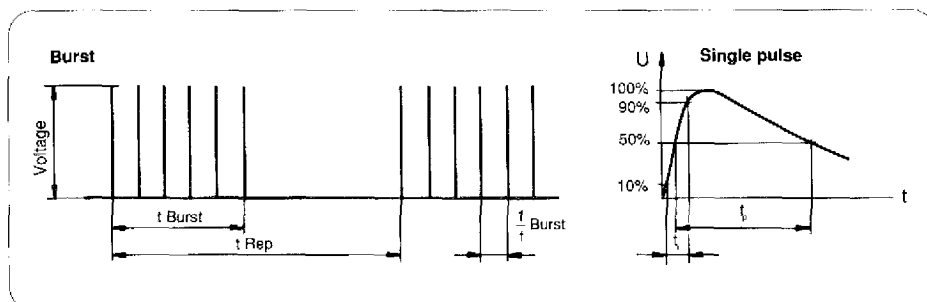
permits the continuous setting of the test voltage and the free choice of the burst frequency for development work and analytical measurements.

In addition the NSG 1025 can generate fast single pulses (5/50 ns transients) which are called for in various test Standards and which are also useful for detailed investigations in development laboratories. Internal and external trigger functions permit the instrument to be flexibly adapted to the various needs. A single-phase mains coupling network is incorporated in the unit which provides the coupling modes called for in IEC 801-4 at the touch of a button besides further coupling modes for special applications.

The NSG 1025 is conveniently equipped with a mains socket as well as universal safety sockets for connecting the test object.

The supply to the test object is separately switchable. Coupling clamps or coupling units for tests on data lines or an auxiliary unit for three-phase coupling can be connected via the HV coaxial connector.

Pulse definitions



Change without notice

Technical Specifications

Pulse amplitude	225V ... 4400V (off-load)
Setting and display accuracy (DVM)	±10% (500 ... 4000 V)
Polarity	Pos. or neg. selectable
Pulse rise time t_r	5 ns ±20%
Pulse width t_p	50 ns ±30%
Burst frequency f_{Burst}	2,5/5/10 kHz ±10%
Burst duration t_{Burst}	15 ms ±20%
Burst repetition t_{Rep}	300 ms ±20%
Generator impedance	50 Ohm ±20% (dynamic)
Single pulses	5/50 ns
	Single triggering or 50 Hz repetition
Coupling network	As per IEC 801-4, built-in
Test object supply	Separately switched via 2-pole over-current trip-switch 5...264 Vac/16A, 15...400 Hz 5...50 Vdc/16A (5...250V/12A)
Coupling mode	Press-button selection asym. L1 > reference earth L2 > reference earth PE > reference earth L1+L2 > ref. earth L1+L2+PE > ref. earth
Phase	Asynchronous
Coupling capacitor	33 nF
Decoupling attenuation	> 20 dB
Cross-talk attenuation	> 30 dB
Instrument supply	115 or 230 Vac, + 15%/-20% 50/60 Hz
Power consumption	25 W approx.
Inputs/outputs	- IEC equipment socket for the instrument supply - 16 A equipment plug for the test object supply - Test object connection: country-specific mains socket - Schuko - UL - BS 1393 - CH Type 13 and universal safety sockets - Gate function for Burst and 50Hz pulse: BNC, active 0 - Trig. function for single pulse: BNC, active 0, with LED - Pulse output: HV coaxial connector - Measurement output: BNC, 100:1 into 50 Ω

Operating and display elements

- Mains switch with indicator
- 2-pole switch for DUT supply with over-current protection
- Press-buttons for:
Burst
50 Hz single pulses
Single pulse triggering
Polarity, +/-
- Fixed setting selection switch:
IEC Class 1 500 V / 5 kHz
2 1000 V / 5 kHz
3 2000 V / 5 kHz
4 4000 V / 2,5 kHz
and free volt./freq. choice
- Freq. switch 2,5/5/10KHz
- Digital display for pulse ampl.
- Multi-turn pot. for pulse ampl.
- Selection keys for coupling modes

Housing Dimensions

19" table-top unit
Height: 183mm (7.2")
Width: 449mm (17.7")
Depth: 361mm (14.2")
10 kg (22 lbs) approx.
+5...+40 °C (+41 ... + 104°F)
20...80% r.h., (non-condens.)

Weight Temperature range Humidity range

Ordering information

Type	Mains	Mains cable and test object connect.
NSG 1025 - 01	220 V, 50/60 Hz	Schuko
NSG 1025 - 02	220 V, 50/60 Hz	CH Type 13
NSG 1025 - 04	110 V, 50/60Hz	498/13 UL/CSA
NSG 1025 - 05	240 V, 50/60Hz	BS 1363

The instrument is supplied ready-to-use, including a mains cable, test object mains connection and operating instructions.

Optional accessories (not included)

INA 160	Brackets for mounting in a 19" rack
CDN 300	FT/Burst coupling network 3-phase
400-071	Coupling clamp as per IEC 801-4
NSG 426	Coupling unit for data line pairs
400-063	Coupling clamp, small for use with NSG 426
156-154	HV coaxial connector (Fischer Type S103A 023)
402-379	Attenuator, 6 dB
402-227	Universal safety connectors (set of 3 pieces)

Subject to change without notice

SCHAFFNER

Subsidiaries:

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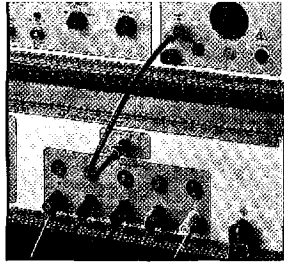
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NSG 1025: Burst Generator

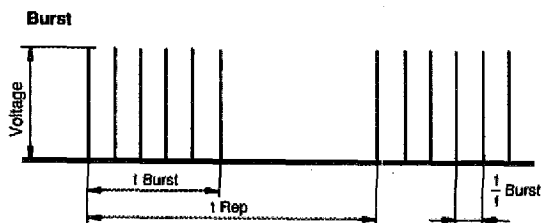
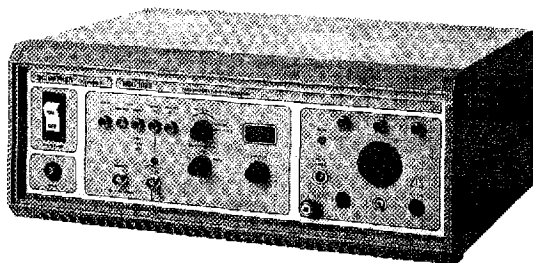
for cost-effective compliance testing & characterization

The NSG 1025 fast transient/burst generator is a low cost, versatile instrument for compliance and pre-compliance testing to IEC 1000-4-4, and for custom tests for design characterization. Even though it offers more functionality and higher performance than other instruments in its class, the NSG 1025 is very competitively priced, helping test houses and in-house test facilities maximize the cost-effectiveness of test resources.

Testing to IEC 1000-4-4 could not be easier than with the NSG 1025. A simple selector switch on the front panel allows the user to choose the appropriate voltage/frequency setting for levels 1 to 4 - 500V/5kHz, 1000V/5kHz, 2000V/5kHz or 4000V/2.5kHz - and the instrument is ready to test.

For custom tests, front panel selector switches allow the user to manually set the voltage level to 4400V max, the frequency at 2.5, 5 or 10kHz and polarity. There is also a remote trigger for manual or external triggering of the burst repetition rate and a single transient generation facility, so that a single pulse can be synchronized with an external trigger or event.

- Auto-parameter setting to IEC 1000-4-4
- User configurable custom test
- Single transient facility
- Three-phase extension option
- Data/signal line testing



CDN 300 Fast Transient/Burst Three Phase Coupling Network

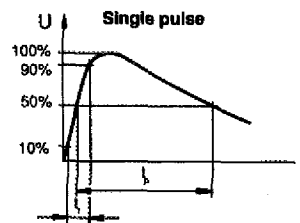
Used in conjunction with the NSG 1025 the CDN 300 brings all the functionality of the instrument to a three-phase supply. Test parameters can be programmed as for single-phase operation, and applied to the three-phase voltage in any combination, simply by selecting the appropriate push-buttons on the unit's front panel.

- ▶ Three phase coupling network to 16A
- ▶ Conforms to IEC 1000-4-4
- ▶ Decoupling attenuation > 40dB

CDN 125 Capacitive Coupling Clamp

The CDN 125 can be used to apply the pure high voltage fast transients generated by the NSG 1025 to data lines or signal cable. It can be used with ribbon cables and round cables up to 40mm in diameter and has an active length of 1000mm. Coupling capacitance will depend on the cross section and the material of the cable, but is typically about 100pF.

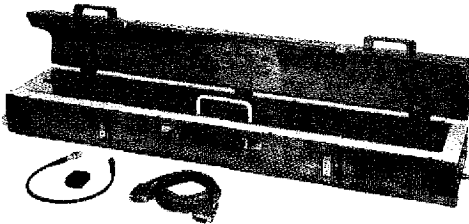
- ▶ Data line fast transient/burst testing



Options

CDN 125 / 126 **Capacitive coupling clamps**

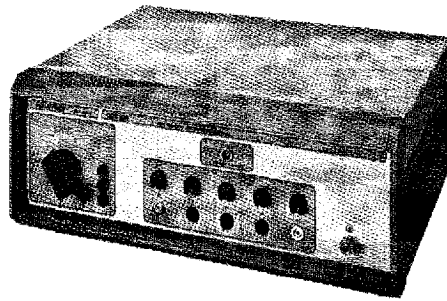
The coupling clamps are primarily used to inject interference pulses into signal and data cables, ie into any type of connection to peripheral equipment. Both models have the same technical features, but the CDN 126 is also equipped with a safety interlock system (SIS).



- ▶ Coupling clamps to IEC 1000-4-4 / 801-4
- ▶ For burst pulses and fast transients
- ▶ Injection into signal and data cables, plus AC line and DC power supply cables

CDN 300 / 300-30 **Fast transient / burst coupler**

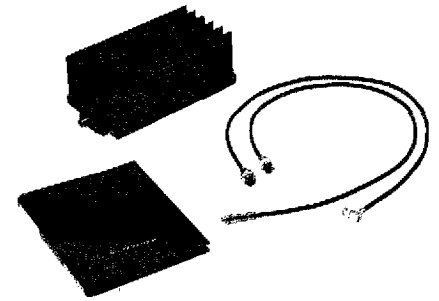
These couplers are used with burst simulators and generators to inject IEC 1000-4-4 transients into equipment which requires three-phase power. The CDN 300 can handle up to 16A and the CDN 300-30 is a higher rated version for 30A.



- ▶ Three-phase 3 x 420V + N + PE up to 16A / 30A
- ▶ Decoupling attenuation > 40dB
- ▶ Coupling in arbitrary combinations into the 5 lines
- ▶ For higher voltages and currents contact your local Schaffner sales office

CAS 2025 **Calibration set for the NSG 1025/2025**

The CAS 2025 includes all the necessary attenuators and connecting cables needed to measure the parameters of a burst generator for standard conformity, using a calibrated oscilloscope.



- ▶ Verification of a generator's output pulse shape data into a 50Ω or 1kΩ termination as per IEC 1000-4-4 / 801-4