



VOLTAGE DIPS AND SHORT INTERRUPTIONS GENERATOR DNBGVD01



MANUAL

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1. INTRODUCTION

The DNBGVD01, Deneb voltage dips and short interruption generator is a compact tool, that allows the execution of “PRE-COMPLIANCE” immunity tests on electronic and/or electromechanical apparatuses, to verify the requisite of the electromagnetic compatibility (EMC).

The DNBGVD01 can perform the immunity test to voltage dips and short interruption according with the norm EN 61000-4-11 and it is composed by a unit rack including the voltage control circuit.

Included in the packages are:

- Cable for power on the generator**
- Cable for power on the EUT**

2. PRECAUTIONS AND SAFETY MEASURES

2.1 GENERALITIES

The tool has been designed in conformity with the norms EN61010 and EN60950, related to the tests and measure of electronic instruments, for an use in an environment with pollution level 2 and can be used for voltage dips and short interruption immunity tests on apparatuses and installations with category of overvoltage III, 600V.

Before using the device, it is essential to read carefully the instructions for its use and maintenance. Make sure that all the persons assigned to its use and maintenance must be adequately specialized and has read and understood the safety indications present in this manual.

2.2 PRELIMINARY INSTRUCTIONS

The tool generates in output high voltages, that can create a serious danger to the human life, therefore must be used from personal specialized in accord with VDE 0104.

Before and during the execution of tests follow meticulously these indications:

- **Don't make the tests in damp environments, in presence of gas or explosive materials, combustible or in dusty environments**
- **Avoid contacts with the circuit in examination**
- **Avoid contacts with exposed metallic parts, with unused measure terminal, etc.**
- **Don't make any test if anomalies are found in the tool as deformations, break-ups, escape of substances, absence of indications on the display etc.**

People that use peace maker or they have other handicaps, don't have to be near the zone where tests are effectuated, because the tool is able to radiate a strong energy in the proximities in which work.

Possible interventions inside the instruments, must exclusively be performed by specialized and authorized personal.

Before opening the equipments verify that all cables, power supply and others, are completely disconnected.

To open the tool after its use, wait at least 10 minutes to allow the inside capacitors to discharge themselves completely.

The not respect of this norms could cause danger at operator life.

In case of not observance than exposed, or, interventions inside the tool performed without written authorization of DENE B Elettronica, it will extinct automatically every form of guarantee on the instrument.

The partial non observance of these norms, can generate malfunctions, equipment damages and personal lesions.

On the other hand, only meticulously following the prescriptions and the recommendations provided by the manufacturer, You can have the absolute certainty to always get the maximum results and receive in case of necessity, efficient technical service.

This instructions manual must be preserved in secure site and available for the use.

For further questions call DENE B Elettronica.

3. TECHNICAL SPECIFICATIONS

Voltage dips and short interruptions generator_DNBGVD01

- Norm of reference: IEC 1000-4-11 (EN 61000-4-11)
- External dimensions: 400 x 430 x 220 (mm)
- Output voltage without load: conform to norm see level tests table and voltage dips duration
- Max current to load 5A.
- Dip rise time from 1 to 5 microsecond.

4. DESCRIPTION AND OPERATIONS

4.1 Generator DNBGVD01

The DNBGVD01 generator is contained in a compact metallic box. On the back side are present the power supply input, the on-off switch, the security fuse (6,3A) and the serial port RS-232.

On the frontal panel of the DNBGVD01 are present:



1 - VARIAC, necessary to set up in precise way the level of test previewed from the norm and relative dip. For example if we set the variac to the level of test 0% we have set up a dip of the 100% because a dip is a voltage fall from max (100%) until the level of the variac, while if we set the variac at level test of 40% we have set up a dip of 60%.The norms previews to set up the Variac to 3 level tests : 0, 40 and 70%.

ATTENTION: DON'T MOVE THE VARIAC WHEN THE INSTRUMENT IS IN START CONDITION.

2 - Plug for connect the EUT to generator

3 - Switch for select the Test. Switch to 8 positions that sets up the duration in periods of the dips levels previewed in the norm:

- 1- Duration of 0,5 periods with dip on positive halfwave**
- 2- Duration of 0,5 periods with dip on negative halfwave**
- 3- Duration of 1 period**
- 4- Duration of 5 periods**
- 5- Duration of 10 periods**
- 6- Duration of 25 periods**
- 7- Duration of 50 periods**
- 8- Automatic execution of the all tests**

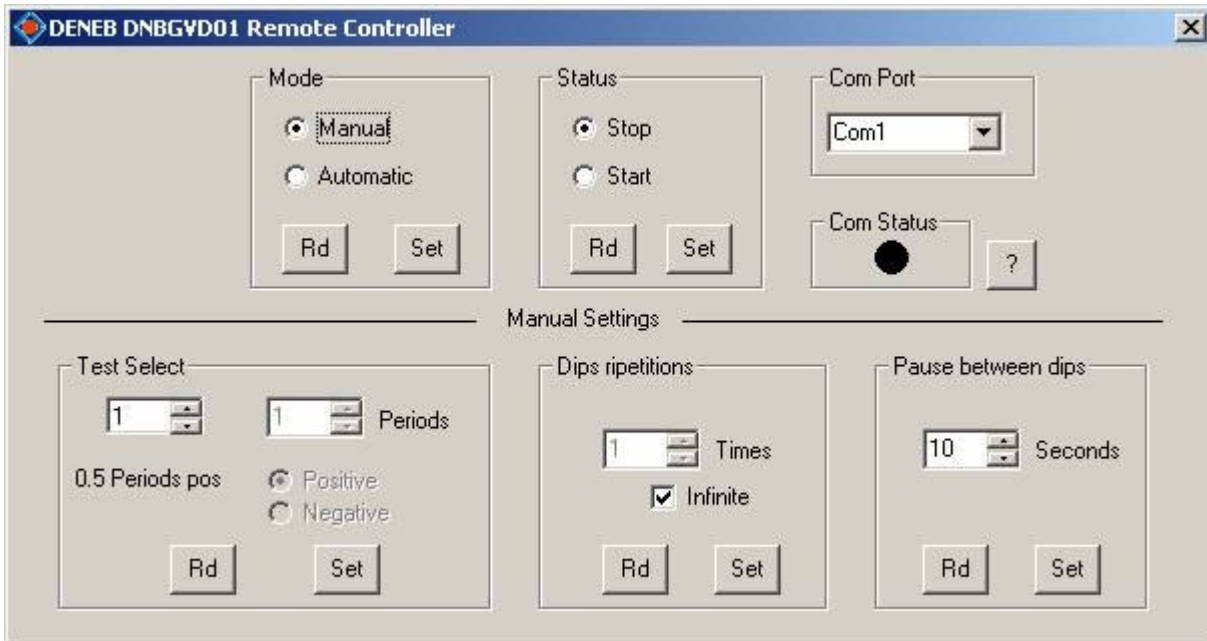
4 - START/STOP Key .By pushing this key the instrument is set in the STOP or START condition.

5 - Led Start, when off the instrument is in STOP condition.

6 - Led Dips is on when the dip is present

7 - Led On, general, of the instrument

It's available as optional the program DENEb Remote Controller that allow, using a PC with a serial port, to use the instrument from a remote zone, and personalize some parameters of the dips generated.



When the instrument is set as automatic the sw can't change the parameters. In manual settings it's possible to change the periods number by setting "pers" in test select, or the repetition dips that can be infinite or from 1 to 250, or the pause between dips that can be from 3 to 20 sec.

5. PREPARATION BEFORE USE

5.1. Initial check

The tool, has been checked electrically and mechanically from Deneb before the shipping, and all possible precautions for his delivery without damages has been taken.

Nevertheless it is recommend to the user to check the tool to verify possible damages suffered during the transport and contact the courier when anomalies are fount.

Check that the package contains all the suitable parts as specified in paragraph 1. In case of discrepancies contact DENEb Elettronica.

If it was necessary to return the tool, please follow the instructions as in paragraph 7.

5.2. Power on the generator

The tool must be powered through 230 VAC 50/60 Hz. The electric plant must have ground cable and must be protected from the indirect contacts, accordingly to the norms CEI 64-8 or to the equivalent national norms in use in the country of installation.

5.3. Adjustments

The device is compliant with the technical characteristics written in this manual. The performances of the device are guaranteed for one year if the conditions of use written in the manual are respected.

5.4 Instrument's clean

To clean the tool use a soft and dry cloth. Never use damp cloths, solvents, water, etc.

5.5 Store

To guarantee precise test, after a long period of store under extreme environment conditions, wait that the device returns to the normal conditions (see the environmental specifications listed in the paragraph 5.6).

5.6 Environment conditions for normal use

Temperature of reference:	18°C
Temperature of use:	0 ÷ 40 °C
Admitted relative humidity:	< 80%
Storage Temperature:	-5 ÷ 50 °C
Storage humidity:	< 70%

6. TESTS EXECUTION

6.1 Theory and norms of DIPS Tests

The DIPS TEST, represent a type of disturbance, defined by the norm EN 61000-4-11, that is applied to electronic and electromechanical apparatus to verify that the EUT will not introduce degradations or breaches on his performances in presence of electrostatic phenomena during its normal operations.

The immunity level of the EUT is prescribed by specific device's category norms and/or global norms.

6.2 Test levels and criteria of immunity evaluation

Here the test levels described by the norm.:

Livello di prova % U_T	Buchi e brevi interruzioni % U_T	Durata (in periodi)
0	100	0,5*
40	60	1 5 10 25
70	30	50 x

(*) Per periodi pari a 0,5, la prova deve essere eseguita con polarità positiva e negativa, ossia partendo rispettivamente a 0° e 180°.

Note: 1 – Si possono scegliere uno o più dei suddetti livelli di prova e durate.
 2 – Se l'EUT viene provato al 100% di buco di tensione, generalmente non è necessario provarlo agli altri livelli per le stesse durate. Comunque, in qualche caso (sistemi di vigilanza o dispositivi elettromeccanici), ciò non è vero. La specifica di prodotto o il comitato di prodotto devono dare indicazioni sull'applicabilità di questa nota.
 3 – "x" è una durata aperta. Questa durata può essere fornita nella specifica di prodotto. Impianti in Europa hanno misurato buchi e brevi interruzioni di durata tra mezzo periodo e 3000 periodi, ma i più comuni sono quelli di durata inferiore a 50 periodi.
 4 – Qualsiasi durata può essere applicata a qualunque livello di prova.

The choice of the test level depends on the degree of immunity that has to possess the EUT, determined from the environment in which is destined to operate, or specified from the generic norms of product related to the specific instrument, or determined by particular applications.

Established the test level to apply, the criterions of evaluation (degrees of immunity) described from the norm EN 61000-4-11 are summaries in the following table:

Evaluation criteria of immunity as described by norm EN 61000-4-11	
Immunity degree	Performances
1	Normal performances within the specified limits
2	Temporary degradation or loss of operation with auto restore
3	Temporary degradation or loss of operation with necessary intervention of the operator or reset of the system
4	Degradation or loss of function not recoverable because of damage to the equipment (components) or to the software, or of loss of data

Admissible immunity degree is established from the generic norms of product which the EUT is subject in examination.

As general rule, the test result positive if the equipment shows its immunity during the tests period, and at the end of the tests the EUT satisfies the established functional prescriptions of technical specifications.

6.3 How to apply Dips .

The Dips and short tension interruption must be applied you for a minimum at least 3 repetitions with an interval between a dip and another of 10second, time already previewed from the DNBGVD01.

Es: We must test a product in respect of the generic norm that previews a test voltage of 0% with the 2 durations pos. and neg. of 0,5 periods, a test voltage of 40% with duration 10 periods and a test voltage of 70% with duration 50 periods by applying the criterion "B". How to use the DNBGVD01 for this test?

- Connect the EUT to the DNBGND01

-Set the variac to 0% and the switch in position 1 or duration 0,5sec pos.

- Start the test and wait at least 3 repetitions by seeing what it happens to the EUT.

- Set the switch in 2 position or duration 0,5 sec. Neg, Start the test and wait at least 3 repetitions by seeing what it happens to the EUT.

- Set the Variac to 40%, the switch in position 4 or ten periods, Start the test and wait at least 3 repetitions by seeing what it happens to the EUT.

- Set the switch in position the 7 or 50 periods, the Variac to 70%, Start the test and wait at least 3 repetitions by seeing

what it happens to the EUT. If all is ok the EUT is conform with the norm.

6.4 Tests preparation

The test is executed with the EUT connected to generator DNBGVD01 through a short cables as specified from EUT manufacturer. If the cable length is not specified the length must be the most possible short for the application of the EUT.

6.5 Execution of Tests

Before beginning the test of a generic EUT must be prepared a test plan that must comprise

- Designation of the type of EUT**
- Information on possible connections with peripheral and correspondent cables**
- Input port for power on the EUT**
- Criteria work and operation mode of the EUT during the test as defined in the EUT technical specifications**
- Description of how to prepare the test**

7. Example of DIPS TEST REPORT

Description of immunity test voltage dips and short interruptions voltage

EUT: _____

Port: Power supply

Norm: EN 61000-4-11

Levels test of the norm:

Lev. Test %UT	Dips and short interruptions vol. %UT
0	100
40	60
70	30

Evaluation criteria of the norm:

Evaluation criteria of immunity as described by norm EN 61000-4-11	
Immunity degree	Performances
1	Normal performances within the specified limits
2	Temporary degradation or loss of operation with auto restore
3	Temporary degradation or loss of operation with necessary intervention of the operator or reset of the system
4	Degradation or loss of function not recoverable because of damage to the equipment (components) or to the software, or of loss of data

Environment test:

Norm of reference: EN 61000-4-11.
Temperature: 18 °C
Relative humidity: 45%
Atmospheric pressure: 1000 mbar

Operating conditions of the EUT:

Normal Operation

Instrumentation used for the test:

INSTRUMENT	Manufact.	Model	Ser. N.
DIP and Short voltage interruption	DENEB	DNBGVD01	#####

Uncertainty of the measure: In agreement with the norm.

Test DIP and short voltage interruption description

Port	test volt.	Duration Period.	Repetitions N.	Evaluation criteria	Result
○ Alimentation 230Vac	0%	0,5	3	B	Conform
○ Alimentation 230Vac	40%	10	3	B	Conform
○ Alimentation 230Vac	70%	50	3	B	Conform
○					

Note:

The EUT don't result dangerous during the test.
 The EUT demonstrate his immunity during the test
 Because is able to recovery in fast time his performances.

8. SERVICE AND GUARANTEE CONDITIONS

This tool is guaranteed against every defect of manufacture and used parts, in agreement with the sale general conditions. During the guarantee period, the defective parts can be replaced, but the manufacturer reserves him the right to repair or to replace the product. If the tool doesn't work correctly, before contacting the Service of Assistance, check the state of cables and connections, so replace them if necessary.

If the tool continues to manifest malfunctions check if the procedure of use is conform as described in the present manual.

If the tool must be returned, for any reason, to the DENEB Elettronica, the shipment is at charge of the owner and the delivery will be, in every case, discussed preventively with Deneb.

Attached to the tool must be always inserted an explanatory note regarding the motivations of the return of the tool.

For the shipment use an adequate protected box; every damage caused by the use of inadequate package will be charged to the Customer.

The manufacturer declines every responsibility for damages caused to people or objects.

The guarantee is not applied in the following cases:

- **Reparation e/o substitution accessories (not covered by guarantee).**
- **Reparations that are made because of a wrong use of the tool with non compatible equipments.**
- **Reparations that are made because of a non suitable packing .**
- **Reparations that are made because of interventions performed from personal not authorized.**
- **Changes to the tool without explicit authorization of the manufacturer.**
- **Use not contemplated in the specifications of the tool or in the user manual.**

In case of not observance of previous written, or, interventions inside the tool performed without written authorization of DENEb Elettronica, will be extinct automatically every form of guarantee on the instrument. The content of the this manual cannot be reproduced in any form without the authorization of the manufacturer.

DENEb Elettronica reserve the right to make changes to the specifications and the characteristics of the tool described in the present manual, due to technological improvements.

9. FAC-SIMILE OF DECLARATION OF CONFOMITY

In the following page is reported a fac-simile of declaration of conformity.



FAC-SIMILE OF DECLARATION OF CONFORMITY

The undersigned Pierantoni Giovanni, director of the “Deneb Elettronica s.n.c.” headquartered in C.da Vallebona, 2 - 62100 Macerata (Italy)

DECLARES

that the tool: instrument “**DENE B DNBGV D01**” DIPS and SHORT interruptions generator to which this declaration refers, it is conform to the followings product directives:

Referred norm	Argument
73/23/CEE	Electric security – low voltage
89/336/CEE	Electromagnetic compatibility
93/68/CEE	CE logo

and what the norms harmonized of reference applied are:

- EN 61010-1: Safety prescriptions for electric instruments of measure, control and for use in the laboratory
- EN 61326: Instruments of measure, control and laboratory - Prescriptions of electromagnetic compatibility
- EN 55011: Radio frequency industrial instruments, scientific and cure - Characteristics of radio disturbance

The undersigned,

Macerata, May 14, 2002

The manufacturer

