WIN2025

FAST TRANSIENT / BURST GENERATOR
SOFTWARE OPERATING INSTRUCTIONS

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1.1 Introduction

WIN2025 provides comprehensive facilities for creating libraries of transient and burst simulations with the NSG2025.
Creating tests, test sequences and test reports is managed easily by using graphical screens within Windows.

1.2 Installing WIN2025

1.2.1 Hardware and System Requirements

To run WIN2025 there are certain minimum hardware and software requirements for your computer. These basic requirements are:

- An IBM compatible PC with 80486 processor or higher.
- A hard disk with at least 50MB free.
- A mouse.
- A VGA or higher resolution monitor.
- Microsoft Windows 95/98/ME/2000/NT/XP
- 64MB RAM

1.2.2 Installing WIN2025

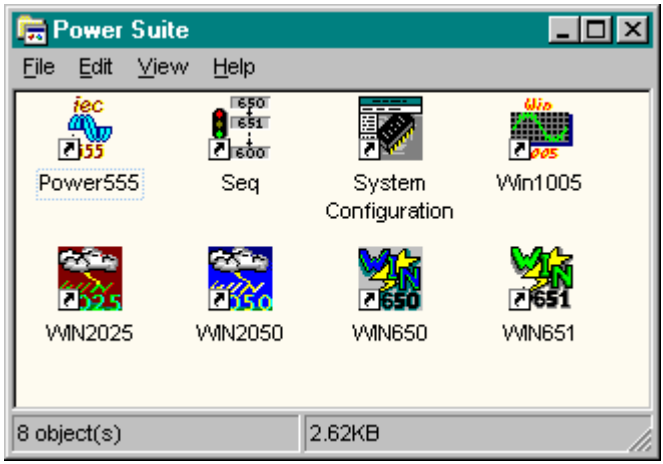
- Insert the Win2025 CD or Conducted EMC Suite CD.
- The software should automatically start installing if not then continue with the following steps
- Under Start select Run.
- Type **`n:SETUP`** and click on OK (where **n** is the letter of the diskette drive).
- Follow the Set-up instructions on the screen.
- During installation you will be asked for company name. This is used in subsequent test reports. You will also be asked for a serial number also known as the software activation code. This can be found on the cd cover and is required to install a valid copy of the software. If you do not have a

valid serial number then enter DEMO to install a 30 day evaluation copy of the software.

2.1 Starting WIN2025

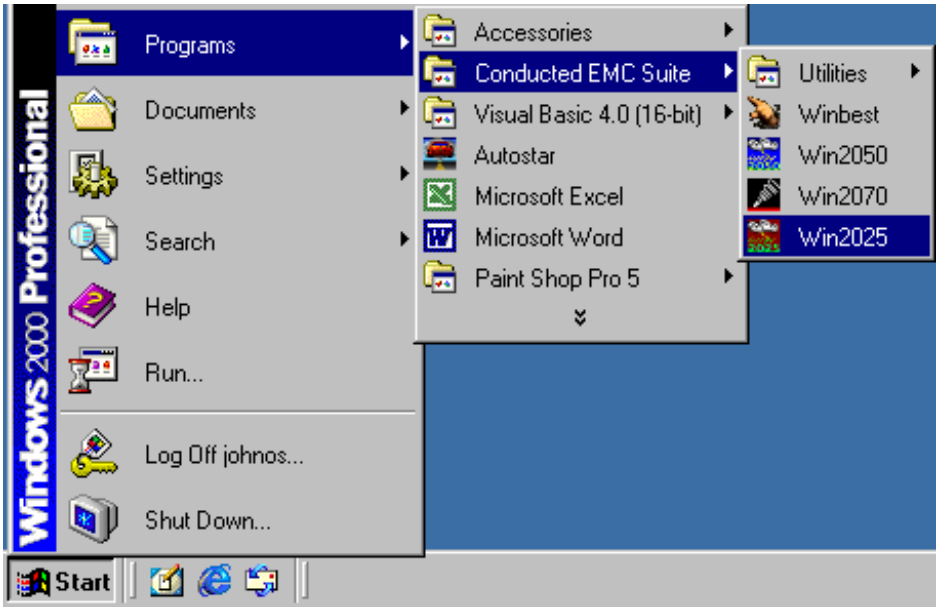
2.1.1 Staring from Windows 3.11

Double click on the power Suite Icon. The Power Suite windows should then open. Double click on the Win2070 icon.



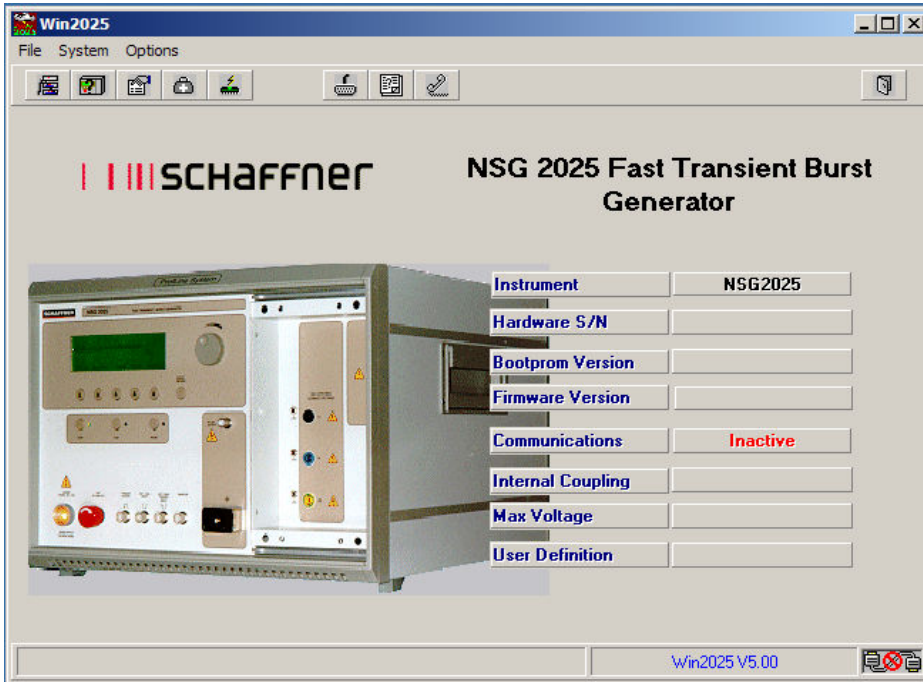
2.1.2 Starting from Windows 95/98/ME/2000/NT 4

From the start menu select the Conducted EMC Suite sub-menu and click on the Win2025 icon as shown below.


Windows 2000 Professional
Programs
Documents
Settings
Search
Help
Run...
Log Off johnos...
Shut Down...
Start
Accessories
Conducted EMC Suite
Visual Basic 4.0 (16-bit)
Autostar
Microsoft Excel
Microsoft Word
Paint Shop Pro 5
Utilities
Winbest
Win2050
Win2070
Win2025

2.2 The WIN2025 Window

The WIN2025 window contains the NSG2025 configuration controls and access to transient and burst simulations, reporting and self-test.

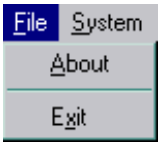


The WIN2025 window offers control via drop-down menus and a tool bar.

2.2.1 Menu Items

There are three drop-down menus on the WIN2025 window providing access to transient and burst simulations and configuration controls.

2.2.2 File Menu

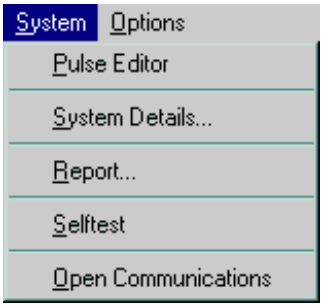


This menu has two options.

Exit, closes the WIN2025 software.

About, opens a window giving information on this software.

2.2.3 Operation Menu



This menu has four options.

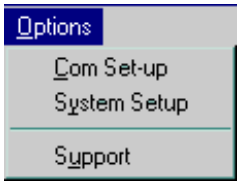
- Pulse Editor, opens the WIN2025 Control Window providing all the interactive features for creating transient / burst test programs.

- Report, opens the WIN-series report generator for automatic creation of test reports and viewing and editing test reports.

- Open Communications, this toggles between live and non-live mode. When in non-live mode there is no communication between computer and NSG2025 instrument. Non-live mode can be used when producing new transient / burst simulations and programs remote from the NSG2025 instrument.

- Selftest, starts the NSG2025 self diagnostics routine.

2.2.4 Options Menu



There are three options in the Setup menu.

- Com Set-up, this opens a dialog box for setting up the serial link between the PC and the NSG2025.
- System Set-up, opens a dialog containing license details, serial numbers and various system options.
- Support, gives details of Schaffner support offices.

2.2.5 Tool Bar

The tool bar provides alternative access to the menu functions.

... Opens the WIN2025 Control Panel

…System details

... Open report

... Communication Setup

... Displays global support offices

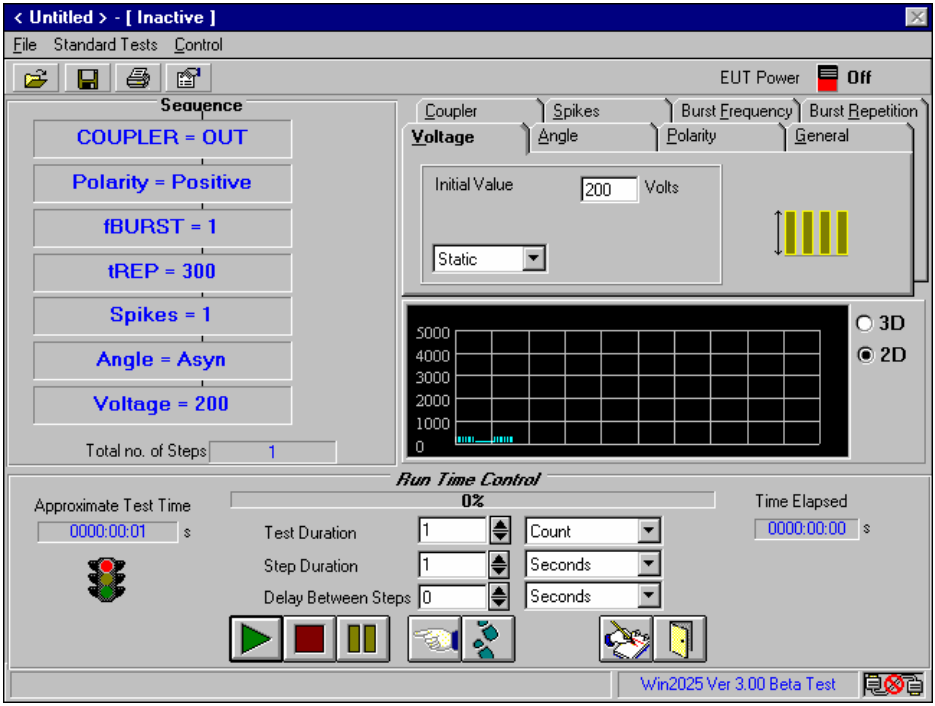
... System details setup

... Commence self-test

... Exit WIN2025 software.

3.1 NSG2025 Control Window

The NSG2025 control window is opened by clicking on the button or by selecting NSG2025 from the operation menu.



The NSG2025 control window comprises of a menu bar, button bar, parameter settings sequence, a graphical display and counter settings.

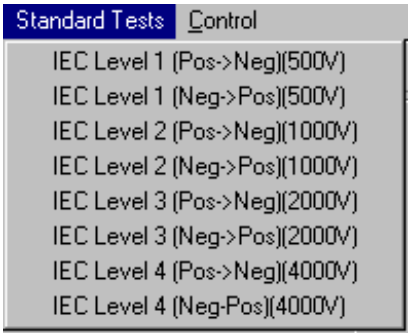
A test is performed by setting the different parameters, selecting the sequence and then running the test, after which the test results and statistics can be viewed and graphed, and a report created.

3.2 File menu

The NSG2025 control window File menu consists of six options: -

- New Pulse, clears all the settings to their defaults for creating a new test.
- Open Setting, enables a previously created test to be opened.
- Save Setting, saves the current test with it's current filename.
- Save Setting As, saves the current test with a new or different filename.
- Print, prints out the current test settings and configuration.
- Exit, closes the Control Panel window and returns to the WIN2025 main window.

3.2.1 Standard Levels



The Win2025 has 4 standard IEC levels defined each of which can start with positive or negative polarity.

1 (Pos->Neg) Start at 0.5kV coupling in turn to each of the available lines for 20 seconds and then reverse the polarity to negative and repeat the process.

1 (Neg->Pos) Start with Negative polarity.

2 (Pos->Neg) 1.0 kV Positive polarity.

2 (Neg->Pos) 1.0 kV Negative polarity.

3 (Pos->Neg) 2.0 kV Positive polarity.

3 (Neg->Pos) 2.0 kV Negative polarity.

4 (Pos->Neg) 4.0 kV Positive polarity.

4 (Neg->Pos) 4.0 kV Negative polarity.

3.3 Button Bar

There are six buttons that mirror the functions found in the File menu:

... Load a previously saved report.

... Open Test, enables a previously created test to be opened.

... Save Test, saves the current test with it's current filename.

... Print, prints out the current test settings and configuration.

..... Eut Power, switches the Eut power on or off, you can only switch it on before a test has started, it may be switched off any time.

4.1 Setting Parameters

There are eight types of parameter settings:

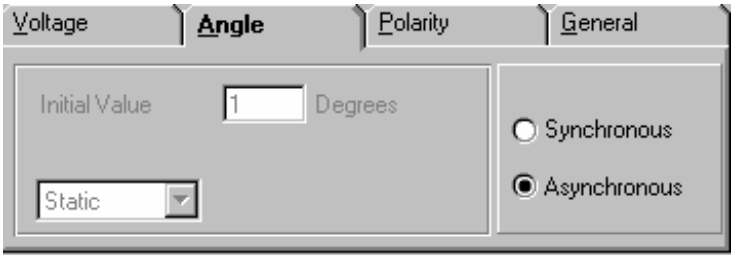
Click on the parameter name to reveal the particular settings available for that parameter.

4.2 Angle settings

There are two modes:

4.2.1 Asynchronous

In asynchronous mode transients/bursts are sent to the device under test irrespective of the supply phase. As triggering in this mode is time rather than phase dependent the Phase section of the window is greyed, indicating it is unavailable. The Burst Repetition interval (the time between pulse bursts) is set in seconds in this mode.



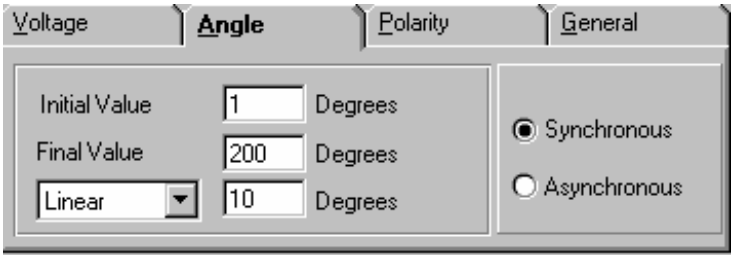
4.2.2 Synchronous

In synchronous mode transients/bursts are sent at specific phase angles (i.e. at specific points in the supply cycle relative to the 0 crossover). The Burst Repetition interval (the time between bursts) is set in numbers of half-waves.

The angle parameter is only available when using synchronous triggering, it controls the phase angle at which the transient/burst is injected. When the trigger angle is to remain static throughout the test only one box is displayed, enter the desired trigger angle into this box.

The trigger angle may be ramped during the test in one of two ways, the ramping method is selected from a drop down list that is accessed by pressing the push-button.

Two more boxes appear in the Phase section when the trigger angle is to be ramped, as shown below.



The top box is now the initial trigger angle (i.e. the trigger angle at the start of the test), the middle box is the final trigger angle and the lower box is the increment, depending on the ramping method the increment may be a specific number of steps or a value in degrees.

Linear

In this case enter the initial and final trigger angles and then the increment size in degrees, during execution the trigger angle will start at the initial trigger angle and be incremented in steps until the final trigger angle is reached.

Number

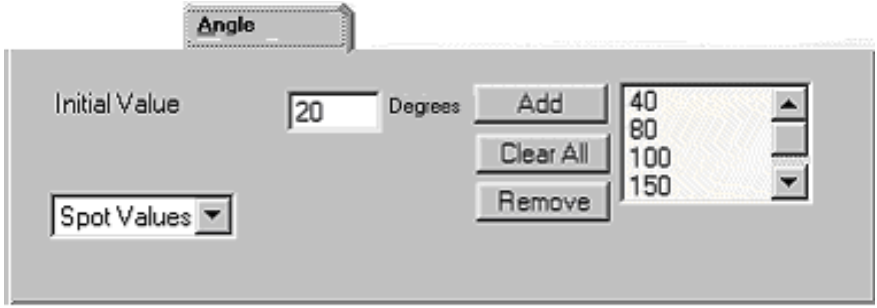
Enter initial and final trigger angles and the number of steps. During operation the trigger angle will be incremented in uniform amounts according to the number of steps.

- When ramping down (i.e. initial trigger angle greater than final trigger angle) the trigger angle will be decremented automatically, there is no need to insert a minus sign in front of the increment size.

4.2.3 Spot Values (New Feature Version 5.00 or greater)
The Spot Values feature allows you enter various values in a sequence.

> *Example : You may want to program certain voltage values such as 40V, 80V, 100V, 150V, 20V. The traditional Linear or Number mode was not able to perform this function.*

When you select Spot Values from the drop down box you get three buttons and a list box as shown below.



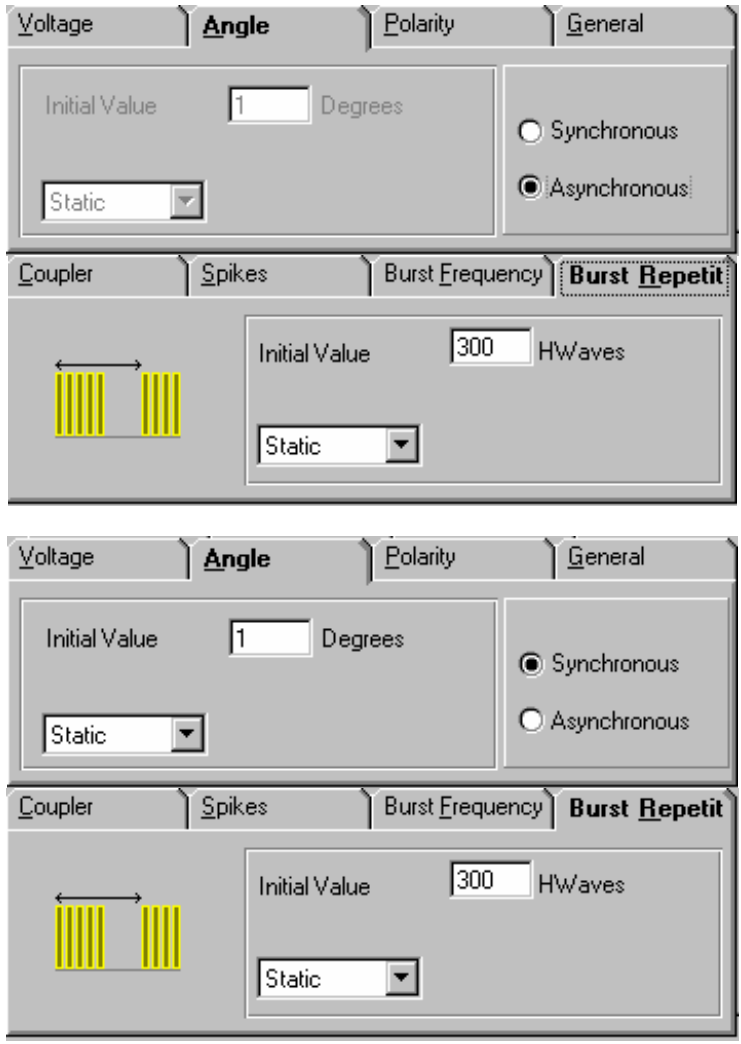
There is always a default value, this value is the default initial value of the parameter. To remove this value enter a new value in the initial value text box, then select add. The new value will be added to the listbox. Select the value you want to remove and click remove.

Add :	Allows you to enter a new spot value. Enter a value in the initial text box, then select add to add your new spot value.
Clear All :	Allows you to clear all the spot values for that parameter
Remove :	Allows you remove a selected spot value. Select the value you want to remove, then click remove.

Note : The software will not allow you enter the same value twice in a sequence. Example 10, 20,40,15,10 The last 10 will not be accepted. The sequence will just be 10,20,40,15

4.3 Burst Repetition

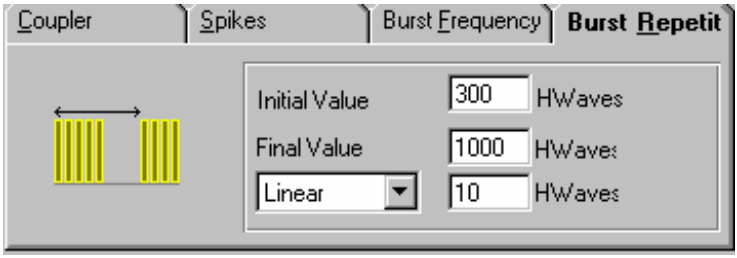
This section controls the burst repeat rate. When using asynchronous mode the repeat rate is set in seconds, in synchronous mode it is set in numbers of half-waves (HWaves).



When the burst repeat is to remain static throughout the test only one box is displayed, enter the desired burst repeat rate into this box.

The burst repeat may be ramped during the test in one of two ways, the ramping method is selected from a drop down list that is accessed by pressing the push-button.

Two more boxes appear in the burst repeat section when the burst repeat is to be ramped, as shown below.



The top box is now the initial burst repeat rate (i.e. the burst repeat rate at the start of the test), the middle box is the final burst repeat rate and the lower box is the increment, depending on the ramping method the increment may be a specific number of steps or a value in seconds or half-waves depending on the mode.

4.3.1 Linear

In this case enter the initial and final burst repeat rate and then the increment size in seconds or HWaves (half waves). During execution the burst repeat will start at the initial burst repeat rate and be incremented in steps until the final burst repeat rate is reached.

4.3.2 Number

Enter initial and final burst repeat in HWaves or milliseconds and the number of steps. During operation the burst repeat will be incremented in uniform amounts according to the number of steps.

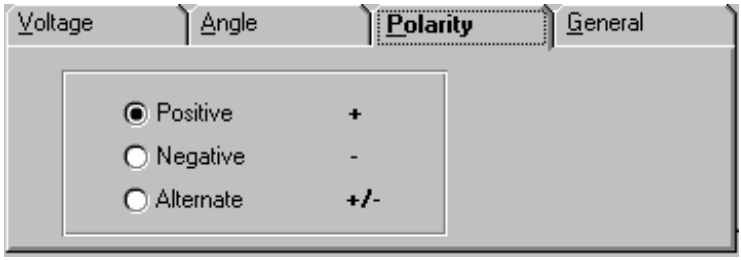
- When ramping down (i.e. initial burst repeat rate greater than final burst repeat) the burst repeat will be decremented automatically, there is no need to insert a minus sign in front of the increment size.

4.3.3 Spot Values

Spot Values – Enter the Burst Repetition rate in a nonlinear sequence
(Example : 10,200, 50, 90)

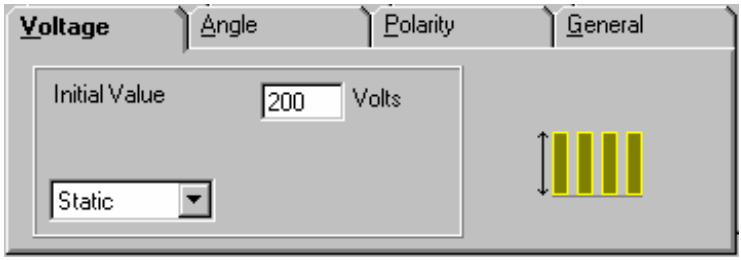
4.4 Polarity

This sets the polarity of the injected burst.



The default polarity is positive. Click on negative to inject negative transients/bursts, or by selecting alternate the test will be performed firstly with positive bursts, then with negative bursts.

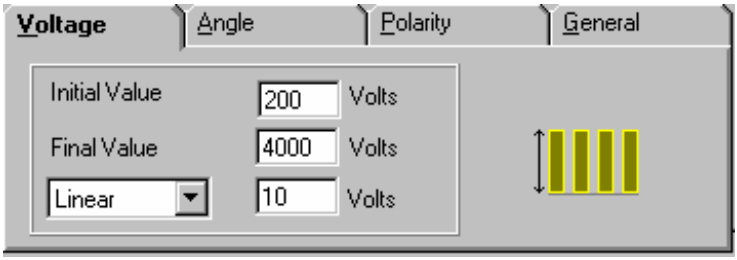
4.5 Voltage Levels



This sets the burst voltage. When the voltage is to remain static throughout the test only one box is displayed, enter the desired voltage into this box (i.e. 200 in the above example).

The voltage may be ramped during the test in one of two ways, the ramping method is selected from a drop down list that is accessed by pressing the push-button.

Two more boxes appear in the voltage section when the voltage is to be ramped, as shown below.



The top box is now the initial voltage (i.e. the burst voltage at the start of the test), the middle box is the final voltage and the lower box is the increment, depending on the ramping method the increment may be a specific number of steps or a value in volts.

4.5.1 Linear

In this case enter the initial and final burst voltages and then the increment size in volts, during execution the voltage will start at the initial voltage and be incremented in steps until the final voltage is reached.

4.5.2 Number

Enter initial and final burst voltages and the number of steps. During operation the voltage will be incremented by uniform amounts according to the number of steps.

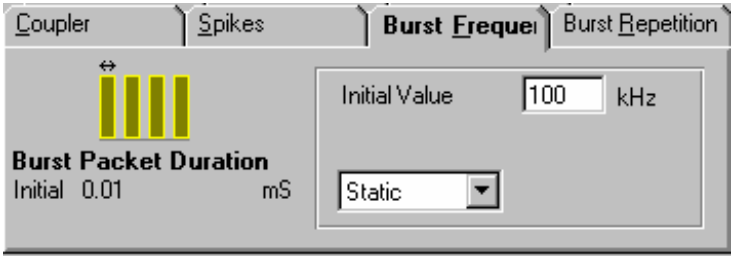
- When ramping down (i.e. initial voltage greater than final voltage) the voltage will be decremented automatically, there is no need to insert a minus sign in front of the increment size.

4.5.2 Spot Values

Spot Values – Enter the Voltages in a nonlinear sequence
(Example : 10,200, 50, 90)

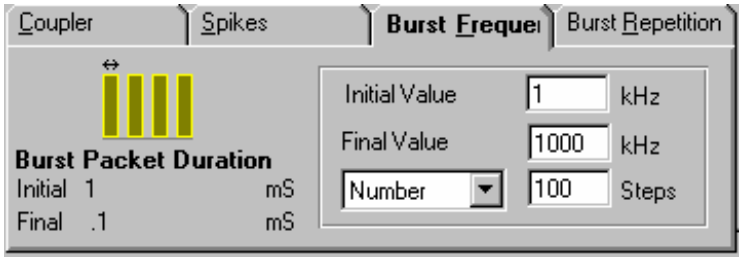
4.6 Burst Frequency

This sets the burst frequency. When the frequency is to remain static throughout the test only one box is displayed, enter the desired frequency into this box (i.e. 100Hz in the above example).



The frequency may be ramped during the test in one of two ways, the ramping method is selected from a drop down list that is accessed by pressing the push-button.

Two more boxes appear in the frequency section when the frequency is to be ramped, as shown below.



The top box is now the initial frequency (i.e. the burst frequency at the start of the test), the middle box is the final frequency and the lower box is the increment, depending on the ramping method the increment may be a specific number of steps or a value in kHz.

4.6.1 Linear

In this case enter the initial and final burst frequencies and then the increment size in kHz, during execution the frequency will start at the initial frequency and be incremented in steps specified by the increment size until the final frequency is reached.

4.6.2 Number

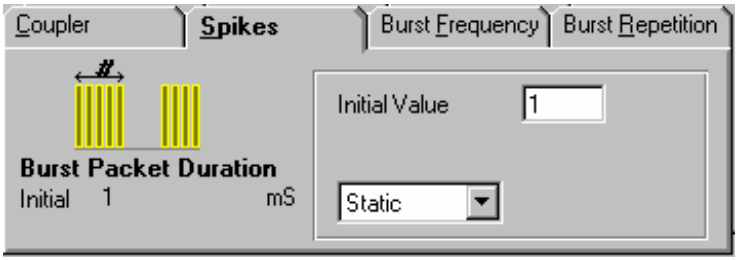
Enter initial and final burst frequencies and the number of steps. During operation the frequency will be incremented in uniform amounts according to the number of steps.

- When ramping down (i.e. initial frequency greater than final frequency) the frequency will be decremented automatically, there is no need to insert a minus sign in front of the increment size.

4.6.3 Spot Values

Spot Values – Enter the Burst Frequencies in a nonlinear sequence
(Example : 10,200, 50, 90)

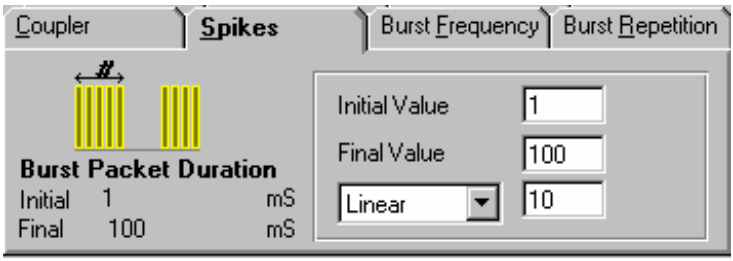
4.7 Spikes



This sets the number of spikes for the transient/burst. When the number is to remain static throughout the test only one box is displayed, enter the desired duration into this box.

The number of spikes may be ramped during the test in one of two ways, the ramping method is selected from a drop down list that is accessed by pressing the push-button.

Two more boxes appear in the Spikes section when the duration is to be ramped, as shown below.



The top box is now the initial number (i.e. the number of spikes per transient/burst at the start of the test), the middle box is the final number and the lower box is the increment.

4.7.1 Linear

In this case enter the initial and final number of spikes per transient/burst and then the increment size (in numbers of spikes), during execution the duration will start at the initial duration and be incremented in steps until the final duration is reached.

4.7.2 Number

Enter the initial and final number of spikes per transient/burst and the number of steps. During operation the duration will be incremented in uniform amounts according to the number of steps.

- When ramping down (i.e. initial duration greater than final duration) the duration will be decremented automatically, there is no need to insert a minus sign in front of the increment size.

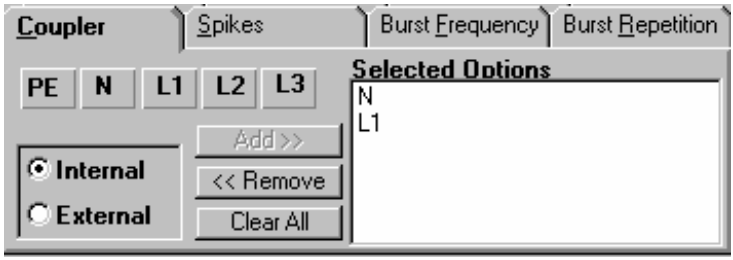
4.7.3 Spot Values

Spot Values – Enter the number of Spikes in a nonlinear sequence
(Example : 10,200, 50, 90)

4.8 Coupling

Click on the Coupling name/icon to reveal the coupling settings.

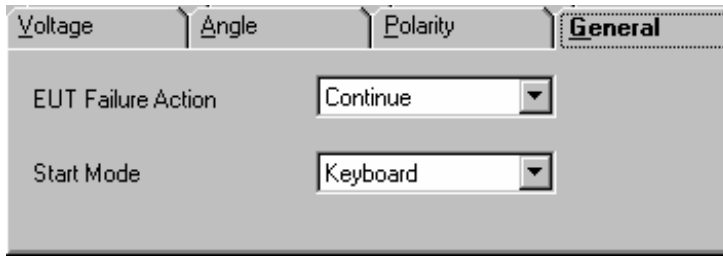
This section contains an array of push-buttons allowing ten different coupling configurations to be used in a test program. During use a test will step through each selected coupling arrangement.



To set couplings simply click on the desired push-buttons (to deselect click again). In the example above six different coupling arrangements have been set for the test.

4.9 General

This controls two test options, available while a test is running.

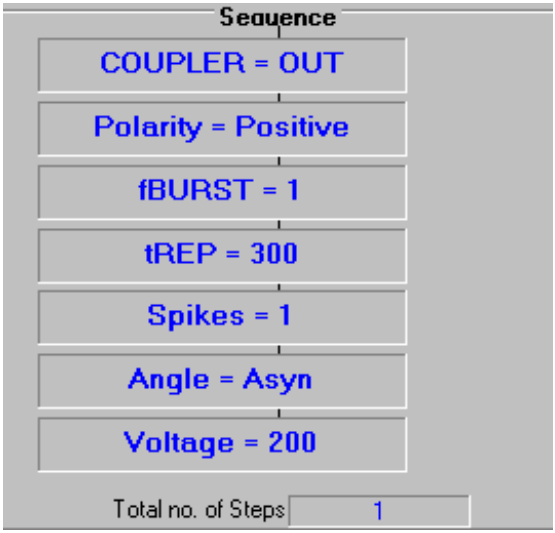


EUT Failure Action allows two options from a dropdown list. If 'Continue' is selected then the test will run to completion even if the EUT (Equipment Under Test) fails. The 'Stop' option will cause the test to stop as soon as the EUT fails.

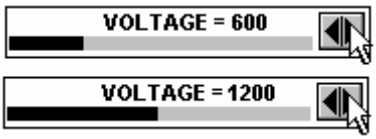
The Start Mode also has two options to choose from a dropdown list.
The 'Keyboard' option allows a test to be started from the keyboard. The 'Extern. Start' option allows tests to be started externally.

5.1 Sequence

5.1.1 The Sequence Chart



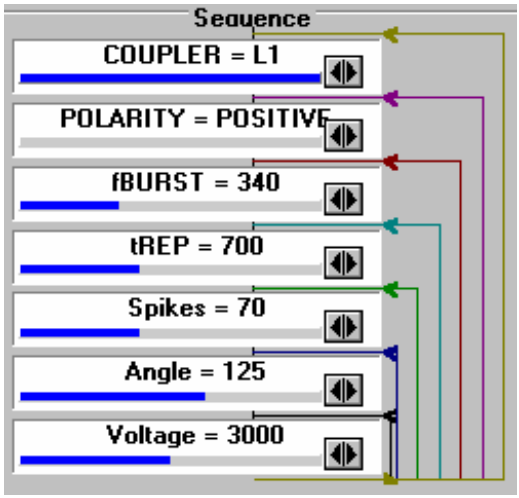
The sequence section is like a very simple flow chart, initially there are seven fields displayed as shown above. However when a particular parameter is to be ramped through a range of values it is displayed with left and right push-buttons and a percentage done indicator.



By clicking on the right hand push-button the parameter (the voltage in the above example) may be manually incremented, one click being one step, this is useful in step by step operation and debugging. Clicking on the left hand button decrements the value.

The coloured bar indicates the position within the range of values and the actual value is shown above.

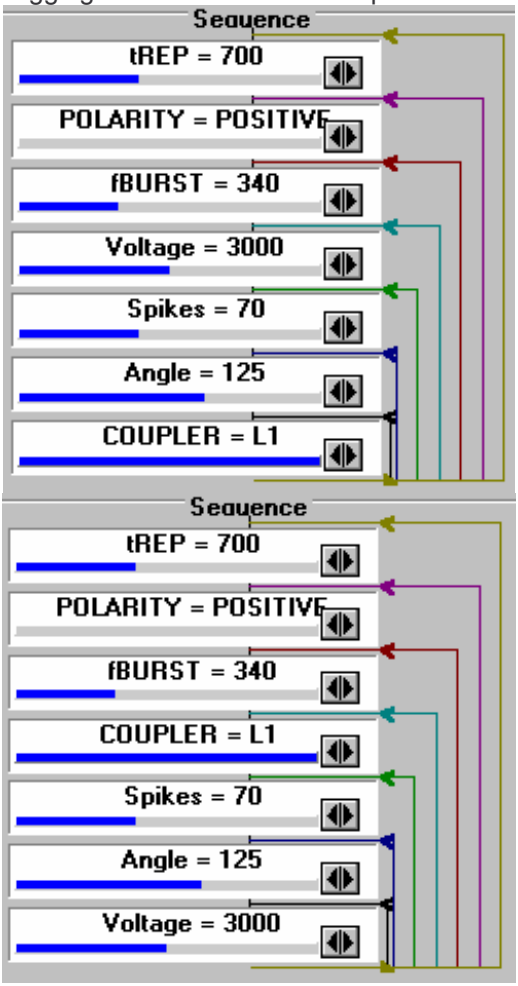
Some tests may not ramp any parameters, complex tests may ramp all of the parameters.



The arrows indicate the order of the sequence, the parameter at the bottom (in this case Coupling) will be cycled the most often with the one at the top being cycled once.

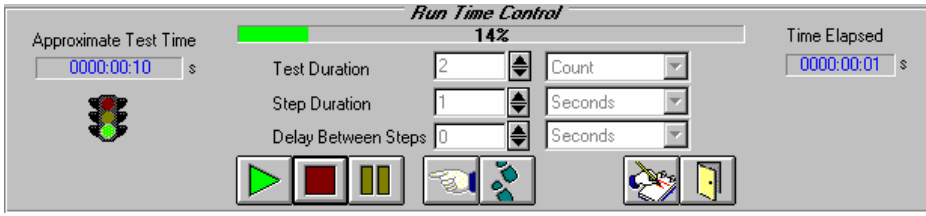
5.2 Changing the sequence

Tests such as these may take a very long time to execute, so to make the setting up and debugging easier the order of the parameters can be changed.



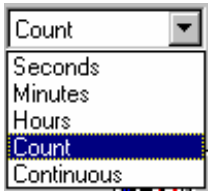
In the example above Voltage has been swapped with Coupling. Simply click on the required parameter and drag it to the new position within the sequence, it will then swap places with the parameter previously in the new position.

6.1 Runtime control



This is the runtime control panel with the familiar WIN-series test controls at the bottom of the area.

The top section of the window governs the operation of sequences/tests, the overall test duration may be set by selecting the units from the drop down list (accessed by clicking on the push-button), and then typing the value into the adjacent text box.



- count lets a specific number of cycles to be entered irrespective of time, therefore in the above example the test program will be run from beginning to end once.

- continuous will repeat the entire test program until the stop or pause buttons are pressed.

The value may also be adjusted in single steps by clicking on the up and down arrows beside the test duration box. The same procedure is used to set the step duration and the delay time between steps (the delay time between steps can only be set in seconds).

There is a percentage done indicator to graphically represent the test program progress, and to the left is shown the approximate duration of the test, and to the right is shown the time elapsed in seconds.

6.2 Control buttons

.... Starts a test.

.... Stops a test.

.... Pauses execution of a test.

.... Steps through a test one discharge pulse at a time.

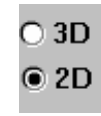
.... Discharges a single pulse at the current settings.

... Note, opens a dialog box for attaching comments to test programs.

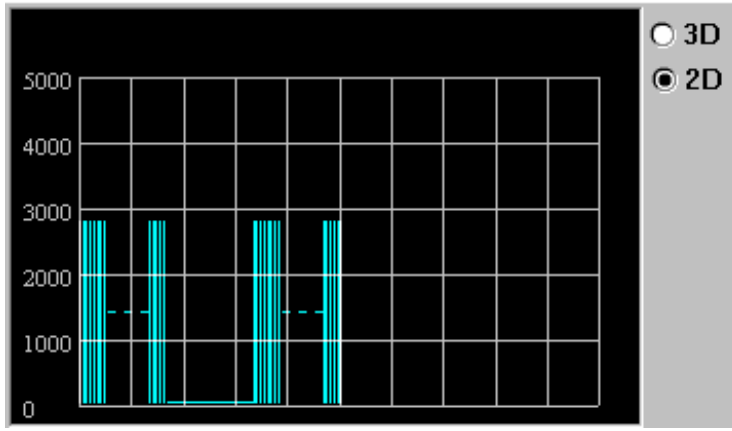
... Exit closes the control window and returns to the WIN2025 main window.

7.1 Graphical Display

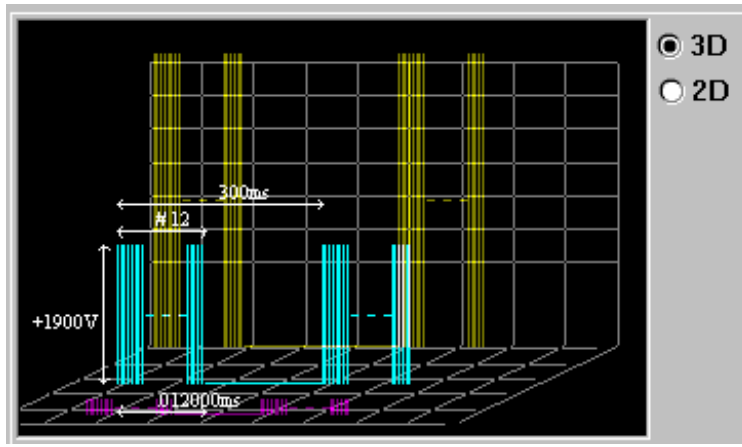
The user has the option of viewing the graphical display in 2D or 3D mode by clicking the required option



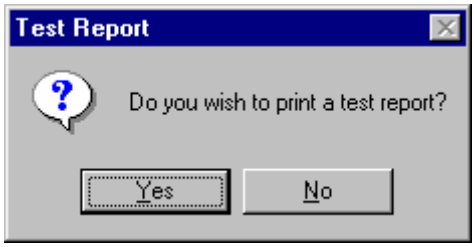
The 2D graph displays the voltage level of the current step.



The 3D graph displays the burst repetition value, the number spikes and the voltage of the current step



8.1 Test Reports



Upon completion of a test program or part thereof a prompt appears asking whether to create a test report based upon the results obtained. Select Yes to open the report generator window.

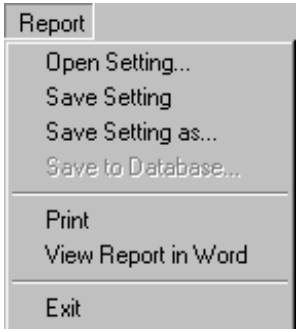
The report generator can also be accessed from the WIN2025 main window by either clicking on the report button or by selecting Reports from the Control menu.

When the report generator is opened it automatically creates a report based on the last test results and details the test settings, test sequence and results. Other fields such as Equipment tested, Serial number etc. can be filled in manually.

The report title may also be changed by clicking on the title and over-typing in the new title of up to 24 characters in length.

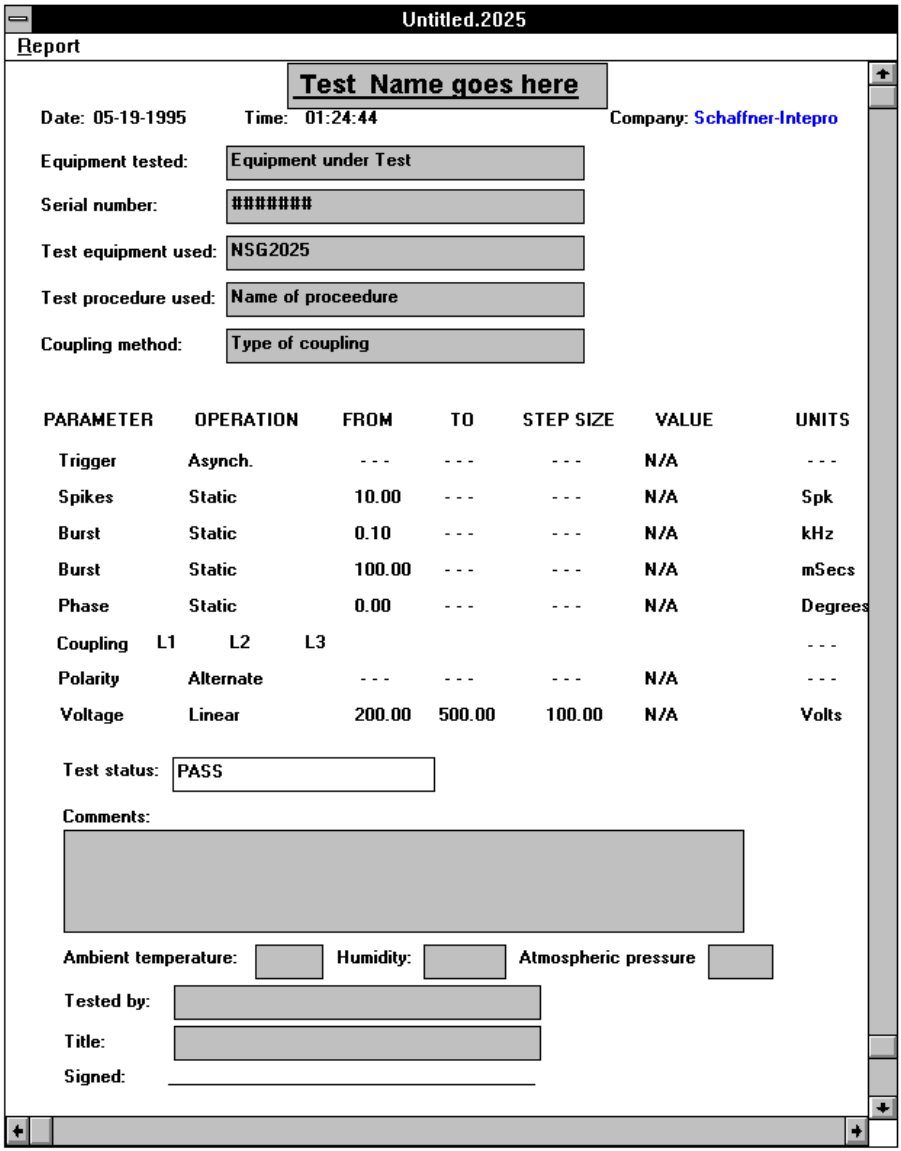
8.2 Report Menu

The Report Generator window has only one menu item, which provides the report generator File options:



- Open Setting… - enables a previously created report to be opened.
- Save Setting…- saves the current report.
- Save Setting as… - saves a currently open report with a new or different filename.
- Print - prints a hard copy of the current report.
- View report in Word - outputs the report to Word 97.
- Exit - closes the Report Generator window.

8.3 Sample report window

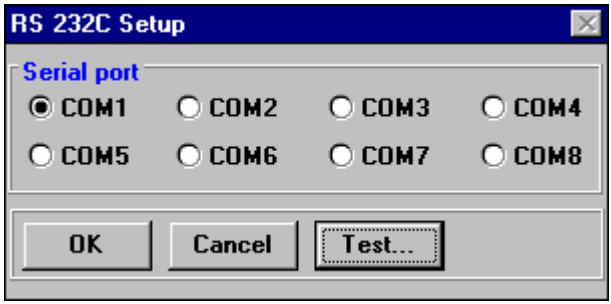


The greyed out boxes are the sections to be filled in manually.

9.1 Communication Setup

Enter Communication Setup by selecting it from the Setup menu in the WIN2025 main window or by clicking on the push-button.

Once selected a dialog box opens for setting up the required serial port on the PC to match the factory settings of the NSG2025.



The default settings are shown above.

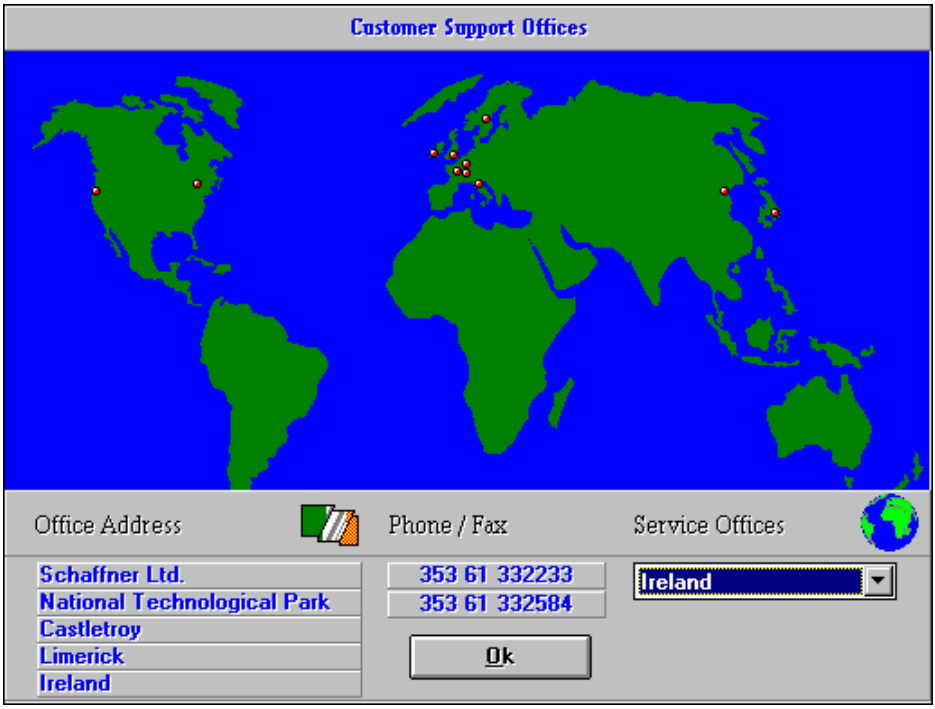
After making any changes click on the test push-button, a text box will appear indicating that the serial port communications are OK, or if not it will detail the nature of the problem.

Selecting the default button resets the communications port to the default factory settings.

10.1 Support Offices

This can be selected from the WIN2025 main window Help menu or by clicking on the push-button.

This displays a world map enabling the nearest Schaffner support office to be located.

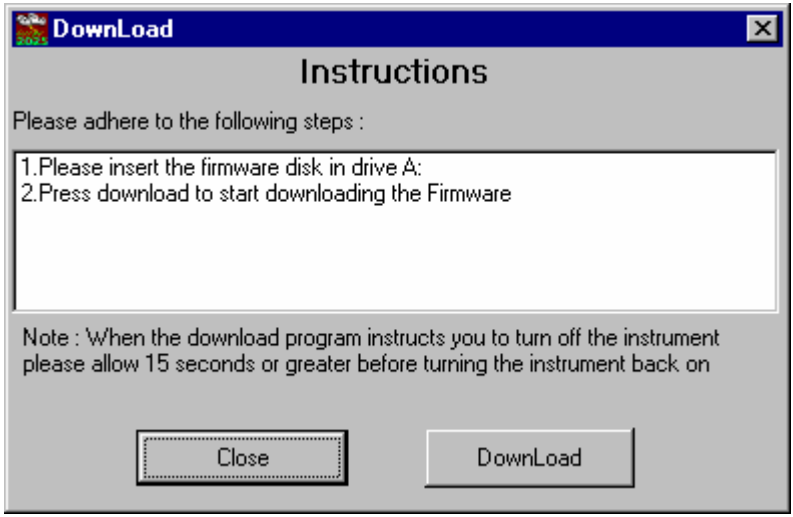


By moving the mouse cursor around the world map the address, phone number and fax number of the nearest Schaffner support office is displayed in the lower section of the box, along with the national flag - even the world globe spins round too !

11.1 Firmware Download

It may be necessary to upgrade the firmware in your instrument. Win2025 Version 3.0 contains the functionality to download to your instrument. The firmware is available on a separate disk which should be delivered with your software. It is important to adhere to the following steps when downloading new firmware to the instrument

1. Open the firmware download window.
2. Insert the Firmware disk into drive A.
3. Click on the firmware download button.
4. Turnoff the instrument in the rear off the instrument when the download program instructs you to do so.
5. Allow 15 seconds before turning the instrument on again. Do not turn on the instrument from the Power Standby switch on the front.

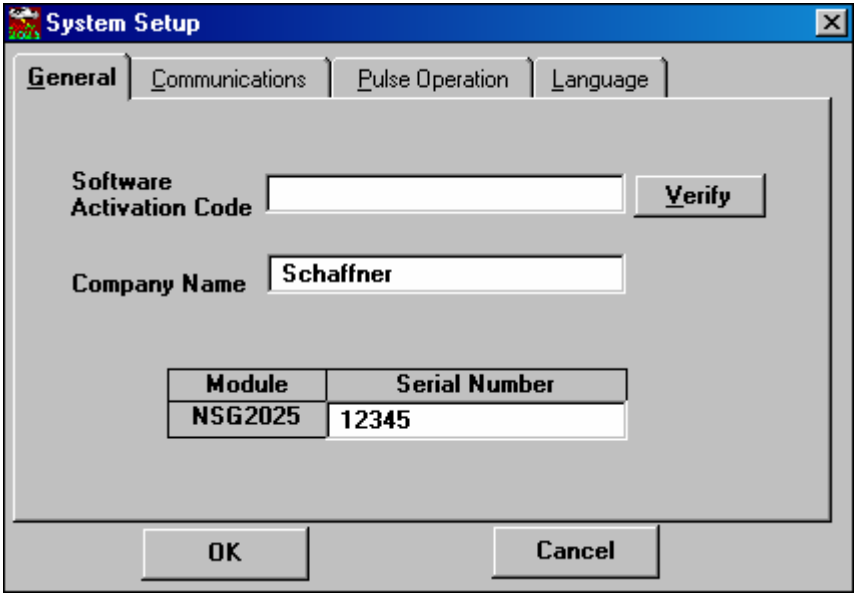


12 System Setup

12.1 System Settings

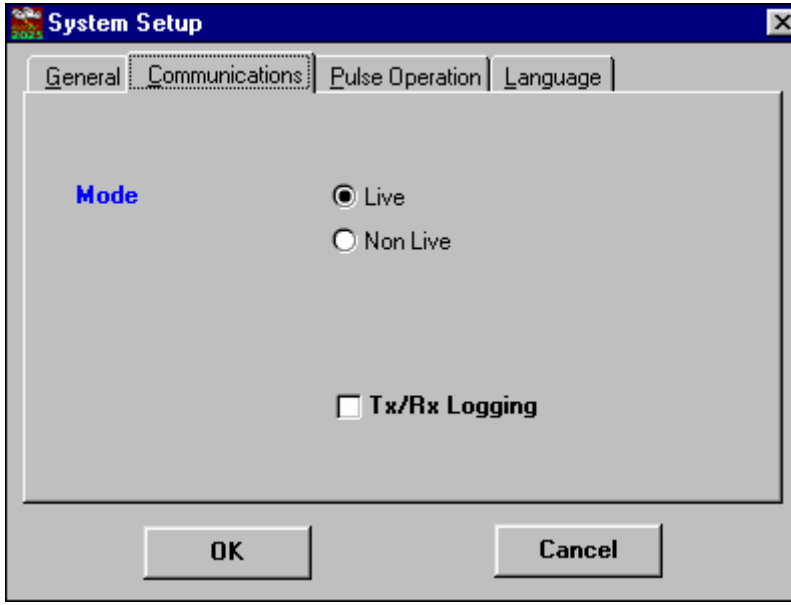
System settings can be set-up by selecting System Setup from the Options menu in the main WIN2025 window or by clicking on the System Setup button.

12.2 General



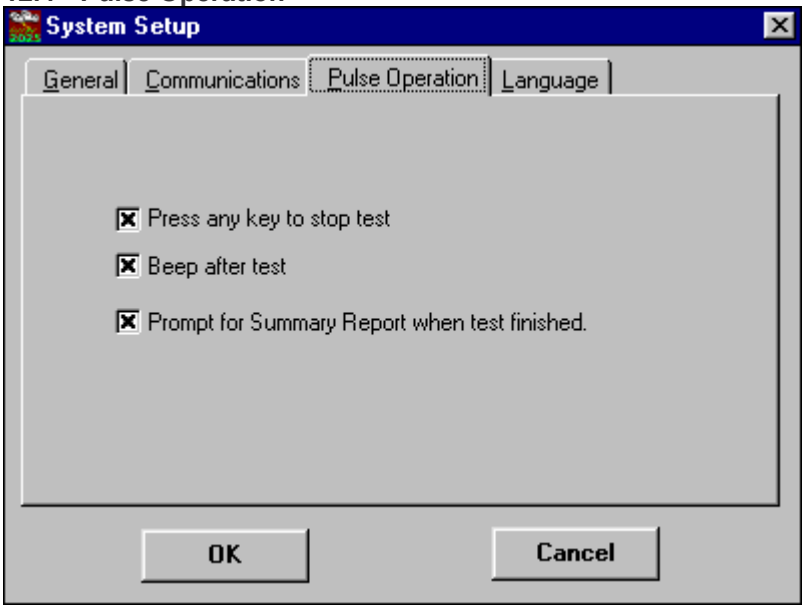
- Company name comes from information the user entered during the installation of the software. It can be modified. The company name is used in test reports.
- The Software Activation Code is the software serial number entered during installation. If the user entered Demo during installation then the user may enter a valid activation code. Entering the code and selecting Verify will check if the entered code is valid.
- Serial number is the serial number of the instrument. Like the company name this is also shown in test reports

12.3 Communications



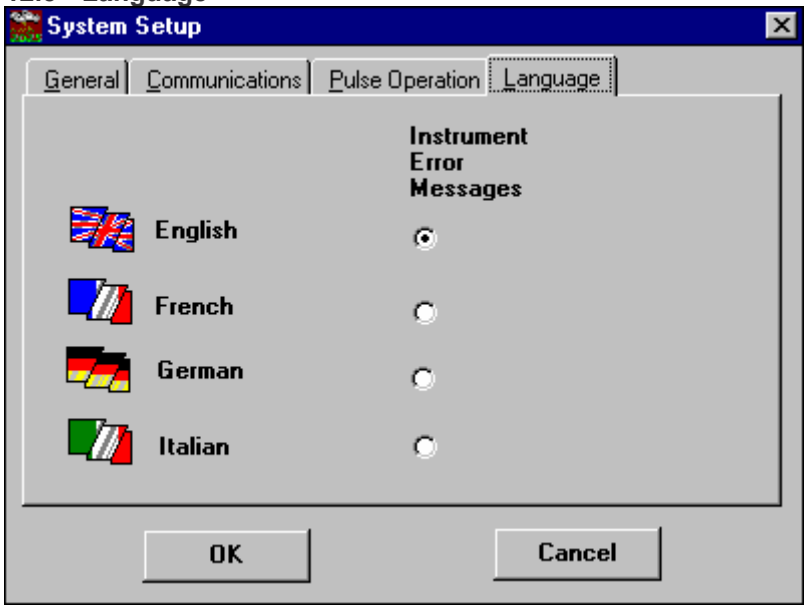
- Mode - this option will toggle between live and non-live mode.
- If Non live or Inactive - there are two options here dictating the default Pulse Network configuration to be used when running WIN2025 in Non live or Inactive mode.
- Tx/Rx Logging - when this option is checked (when there is a cross in the box) all Tx/Rx communication will be saved to the Tx/Rx Log. The Tx/Rx log can be useful for debugging the system, however communications are slowed down when it is enabled so it is best switched off in normal operation. See more about this in section .

12.4 Pulse Operation



- Press any key to stop test - during operation pressing any key on the computer keyboard will stop the test.
- Beep after test, audible indication that the test is complete.
- Prompt for Summary Report when test finished, automatically asks whether to create a report at the end of every test.

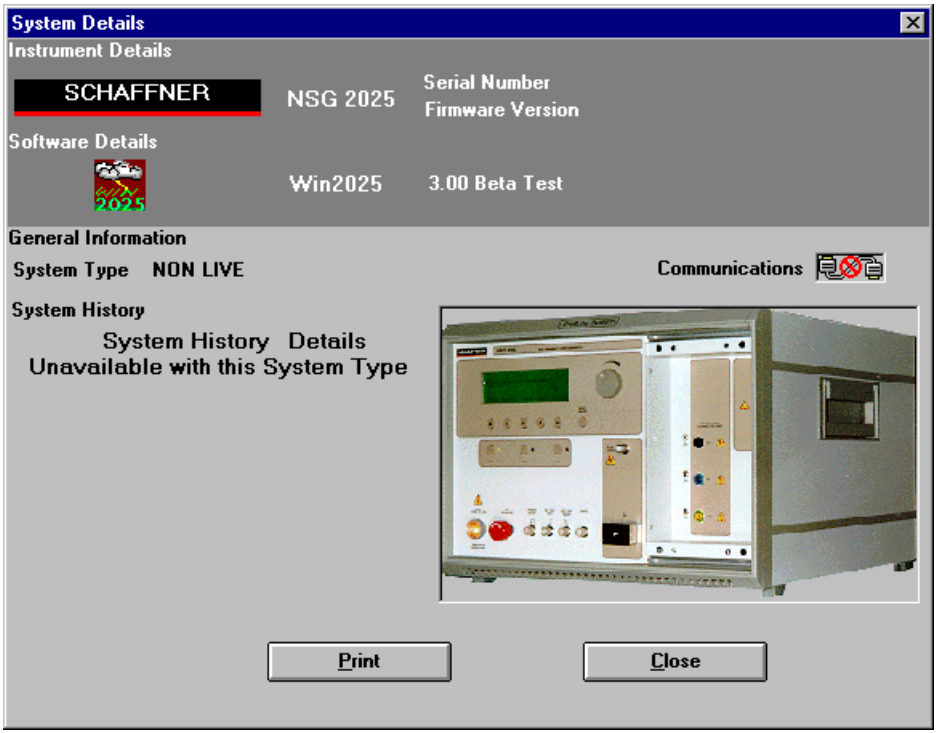
12.5 Language



Simply select the desired language for the Instrument Error Messages, the default is English. The other choices are French, German and Italian.

13.1 System Details

This window offers information on the present software and hardware as well as the current system status. The System Details window can be opened by clicking the button on the WIN2025 window or by selecting System Details from the System menu.



The system details can be printed to the default printer by clicking the Print button.

14.1 Selftest

This option is selected by clicking the button on the WIN2025 window or by selecting Selftest from the System menu. Selftest will generate one of the following messages:

'Selftest OK'

- The Selftest has been satisfactorily carried out.

'Program memory error'

- A program memory error has been detected while carrying out the selftest.

'Calibration memory error'

- An error has been detected in the calibration memory while carrying out the Selftest.

'RAM error'

- An error has been detected in the RAM memory while carrying out the Selftest.

'Boot PROM error'

- An error has been detected in the boot PROM while carrying out the Selftest.

'Burst Generator'

- An error has been detected while carrying out the local burst generator test.

'HV-error'

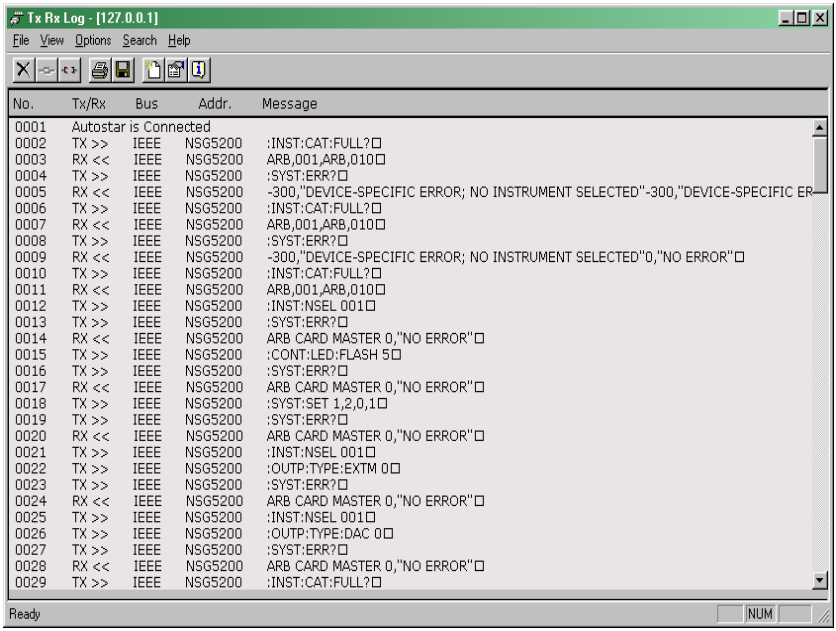
- The HV voltage cannot be generated.

There can only ever be one test result available at any one time, i.e. a test is interrupted as soon as an error is detected.

15.1 Tx/Rx Log

The TX/RX Log (also known as Transmission Log utility) is a very useful debugging tool.

When the Transmission Log is open and connected all Tx or Rx transactions are registered. The diagram below shows the complete Tx and Rx transactions for a demo test. The window has a default of 2000 transactions. This number of transactions is configurable in the configuration dialog.



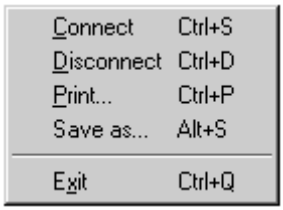
The list shows the transaction number, whether it was Tx or Rx, which bus was used (if other than the IEEE bus the address is shown) and the message sent or received.
Opening the Transmission Log during a test it is possible to view the transactions in real time.

The contents of the Tx/Rx log can be saved and/or printed out.

This Transmission log is defaulted off.

Transmission Log Menu Bar

File Menu



Select the appropriate menu command to perform the following function.

Connect to TX/RX Log Server

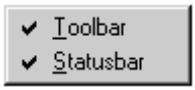
Disconnect from TX/RX Log Server

Print the Log

Save Log to file as…

Quit the application

View Menu



Select the appropriate menu command to perform the following function.

View the Transmission Log toolbar

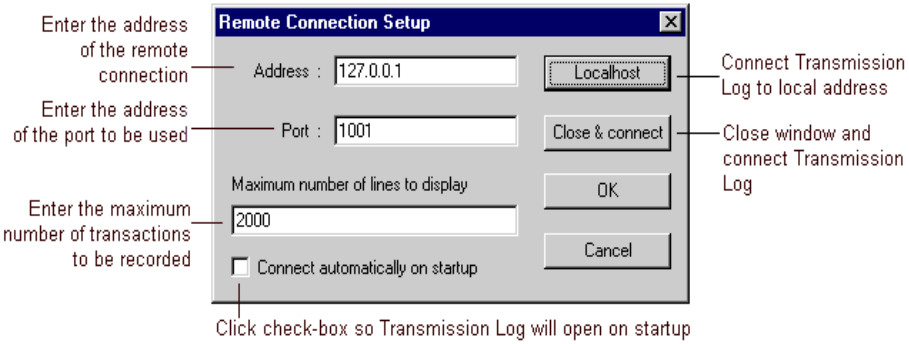
View the Transmission Log Statusbar

Options Menu

Select the Always On Top command to view the Transmission Log in front of all other open windows

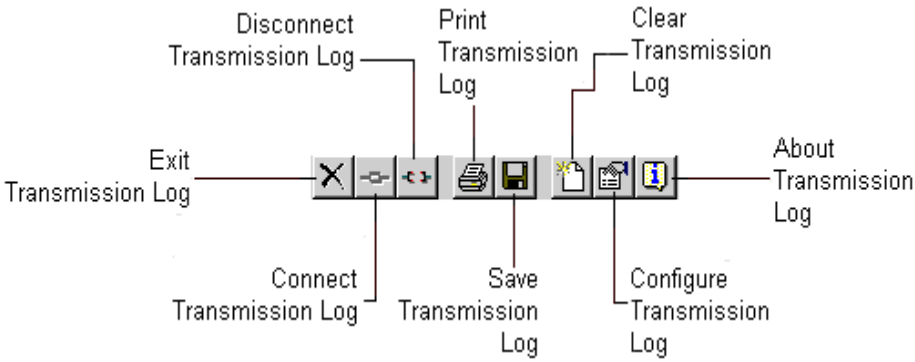
Select the Clear Syslog command to clear the Transmission Log of all transactions

Select the Configuration command to open the Remote Connection Set-up Window as shown below…


Enter the address of the remote connection
Enter the address of the port to be used
Enter the maximum number of transactions to be recorded
Remote Connection Setup
Address : 127.0.0.1
Port : 1001
Maximum number of lines to display
2000
Connect automatically on startup
Localhost
Close & connect
OK
Cancel
Connect Transmission Log to local address
Close window and connect Transmission Log
Click check-box so Transmission Log will open on startup

Search Menu

Find... Ctrl+F

Select the File command to open the File window as shown below. Use this window to search all transactions up and down for required information. Type the search details in the text entry box. Click the check box to match the case of the search to the Transmission Log text.

Transmission Log Toolbar