

# Tester v5.10c Addendum

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**NOTE:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**CAUTION:** Changes or modifications to this equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



# Chapter 1

## Introduction

The Tester is a test and analysis tool supporting the ESCON-S channel (native channel) protocol. Additional Line Interface Expansion Cards will be available from CTP in the future to support alternate protocols.

Designed to operate in the field, data center, manufacturing center, or engineering lab, the ConnTech 2000 is operated from your serially connected lap-top PC. Transport the PC and Analyzer together as a one mobile test/analysis unit, or carry a single PC to service any number of test sites where ConnTech 2000's are installed.

Included with the package is the v5.10c (or later) Link / Bert *Tester* software for data-pattern testing of an ESCON link<sup>1</sup>. In addition to the single-testing mode previously supported, the v5.10c software provides a multiple test sequence capability through a simple, intuitive and quickly configured graphical interface. This interface lets you run a suite of up to ten user defined tests. These tests are based on the current functionality of the single-shot Bert Tester (documented in the ConnTech 2000 ESCON User's Guide), with a single mouse click. To set up multiple-test scenarios, access the new Test Matrix tab (at the upper right side of the main ESONN Link / BERT Tester window, after the Link and BERT tab).

You can set the duration of tests to run for a specific time; in days, hours, minutes or seconds; or to run continuously. An overall test result status for the entire test suite, and a status for each of the ten individual tests, are provided. A default test suite, based on the experience of CTP's customers, is provided by loading the default test matrix file, Default.tmx. You can use the suite as defined, or customize the parameters of each test. Parameters include Data Rate, Data Size, Test Data Pattern and duration of test. Each of the individual tests in the suite can be enabled/disabled by clicking a checkbox. You can save a suite as a Test Matrix file (TMX) for future use and automatically load its parameters as the default multiple-test configuration on startup. The number of modified Suites that can be saved in this manner is only limited by the available hard-drive space.

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<sup>1</sup> Please visit our web site ([www.c2p.com](http://www.c2p.com)) for information on most recent versions of software available and FAQs.

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See the ConnTech 2000 ESCON User's Guide for specifications, hardware setup, software installation, and other information regarding the ConnTech 2000 ESC and all of its applications.

### Link / Bert Tester Mode

For Link / Bert Tester operations, connect cables for line testing on one or both links (TX1/RX1 and/or TX2/RX2) as shown in

Figure 1. The ConnTech 2000 supports the full ESCON rate (19.6 Megabytes per second) as well as lesser rates.

After launching the optional LINK Tester, you can access the **Setup** button from the main window. The Tester uses a BERT generator which provides data patterns of various compositions and sizes. Select any standard pattern or define your own test data. Tester setups can be saved to file and used again and again. The software performs Link Diagnostics and Bert testing simultaneously.

The Link Diagnostics testing monitors the Link status and logs errors and/or link states. The internal generator can be left ON when the test is complete leaving the Link in IDLE state.

The Bert Testing monitors for bit errors. The error count and error rate of both the last sample and the total of all samples from the start of the test are maintained and displayed. Bit errors are logged as they are detected. A **Reset** button is provided to reset the error rate calculations. For the highest Data rate, 19.6 MB/s, errors can be injected into the data stream. The errors can be injected at a rate of  $10^{-3}$ ,  $10^{-6}$ , or single errors can be generated. This is useful for initial test setup and calibration.



*Link Diagnostics can be performed on one or both links (TX1/RX1 and/or TX2/RX2).*

*Bert testing can only be performed on one link (TX1/RX1).*

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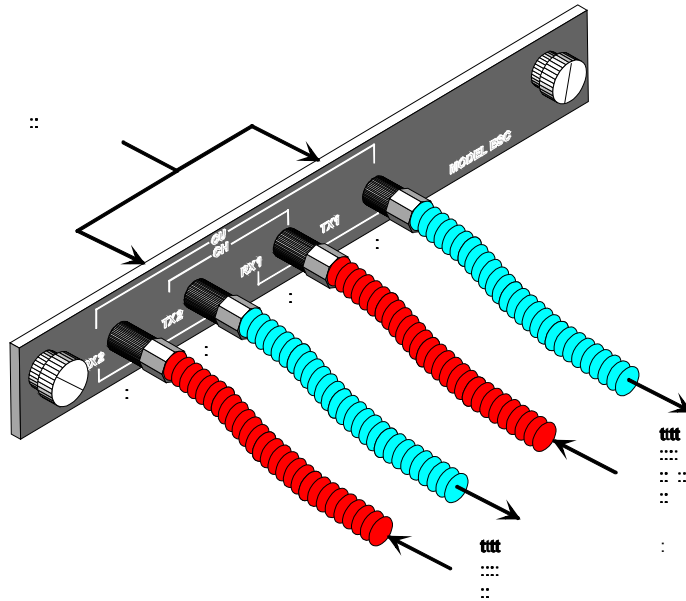


Figure 1: Tester Cabling Diagram

## Port Setup

The first time you run the software, click on the **Setup** button to configure the Tester. The Setup/Configuration window appears. This window sets temporary file locations and selects which PC COMM port the software uses to communicate with the ConnTech 2000. See “Software Setup” in Chapter 4, “Software Installation” of the ConnTech 2000 ESCON User's Guide for a detailed procedure.

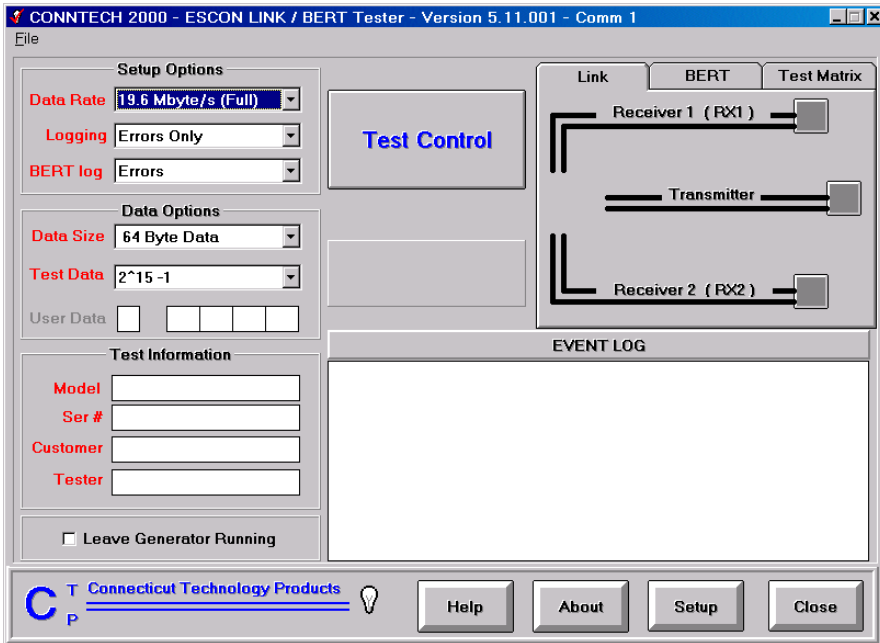
## Launching the Version 5.01C Tester Software

Use following procedure to launch the ESCON LINK / BERT Tester application.


1. Use the Windows **Start** menu to display the **TESTER-ESCON** menu item (under **Programs**).
2. Click on **TestMatrix** to launch the Tester software.

The Tester window appears:

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## Exiting the Tester Software

The Tester software features a **Close** button at the lower-right side of the window. There is also a standard  button in the upper right that does the same thing.

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### ➤ To Exit The Tester Software

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1. Click on the **Close** button to exit the program.  
You should now see the Windows desktop.





*Power must be recycled on the ConnTech 2000 when switching between the modes of operation, Analyzer / Generator and Link / Bert Tester, to insure proper operation.*

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# Chapter 2

## Single Test Mode

When performing single tests, the Tester window indicates recognition of the various link states by changing the link-state indicators from  to .

A change to a black arrow indicates NO LIGHT. A change to green arrow indicates that the Tester detects LIGHT on the matching link. If these indicators fail to change, you may be setup with the wrong COMM port selected, see “Port Setup” below to remedy this condition. See “Defining the Test,” below, to continue the test procedure. A NO LIGHT condition can also be caused by overdriving or underdriving the optical receiver. See “Specifications” on page 5 of the ConnTech 2000 ESCON User's Guide.

### Defining a Single Test

Setting up the test consists of selecting Setup Options and Data Options, and entering Test Information. All of the entered information will be reported in the event log, along with the test results.

Two devices can be simultaneously Link tested, but only one device can be Bert tested (RX1, TX1). The same test pattern data will be transmitted to both of the devices for the Link Level test.

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#### ➤ To Set Up the Test

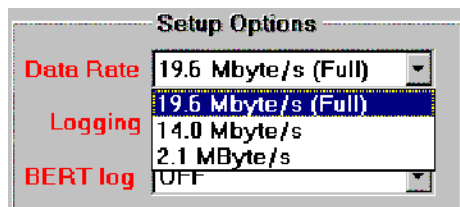
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1. Select a **Data Rate** to match the supported rate of the device(s) under test.



*You must choose the highest data rate (**Full**) to enable BERT options available during testing.*

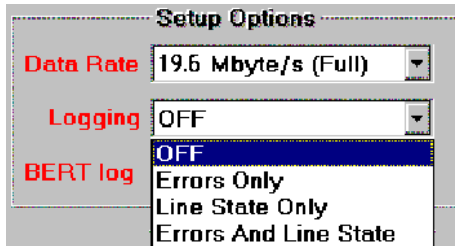
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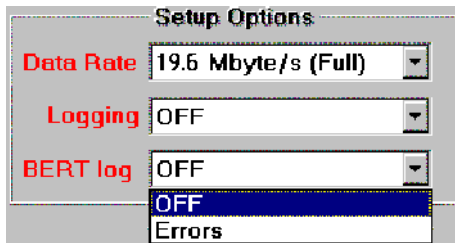
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2. Select a **Logging** option that determines what type of link-test information to report in the log.



3. Select a **BERT Log** option that determines whether BERT-test information is reported in the log.

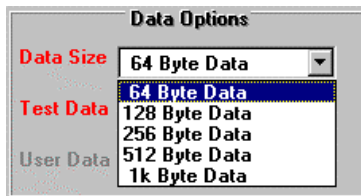


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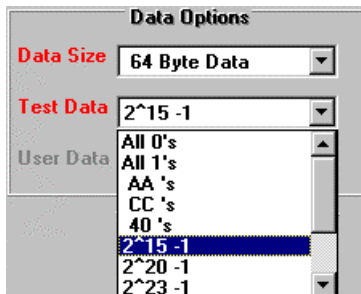
### ➤ To Define the BERT Data Pattern

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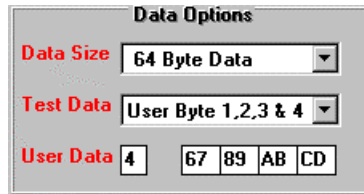
1. Select a **Data Size** for the test pattern.



2. Select a standard pattern from the **Test Data** list, or select **User Byte** from the list to define a custom test pattern.



- If you selected one of the **User Byte** options from the **Test Data** list above, the **User Data** byte fields below activate for data entry. The number of bytes that are activated depends on the **User Byte** option selected (1, 2, 3, 4). Enter the individual bytes in the remaining fields.



**Data Options**

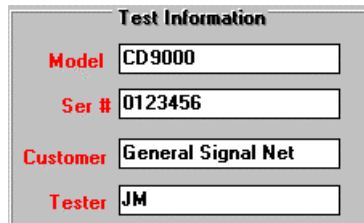
**Data Size** 64 Byte Data

**Test Data** User Byte 1,2,3 & 4

**User Data** 4 67 89 AB CD

### ➤ To Enter Test Information

- Enter the **Model** number of the device under test and its Serial number (**Ser #**).
- Enter the name of your **Customer** and your name or initials (**Tester**).



**Test Information**

**Model** CD9000

**Ser #** 0123456

**Customer** General Signal Net

**Tester** JM

### ➤ Leaving the Link in the IDLE State after a Test

- By default the Tester leaves the Link in a *NO LIGHT* state whenever you stop a test. To leave the Link in the *IDLE* state after tests, enable the **Leave Generator Running** checkbox.



Leave Generator Running



*If you leave the Generator running when the test is stopped then this will eliminate alarms due to No Light conditions. This is useful if you want to run multiple tests.*

## Performing Single Tests

### ➔ To Start the Test

1. After setting up the test, click on the **Test Control** button to start the test pattern transmission.
2. The Tester software displays a progress bar to indicate it is transmitting the defined test pattern. When done, the Event Log area displays the Test Information entered earlier, followed by time-stamped events (Link states, Link Error conditions, Data / No Data, Light / No Light, and Bert Errors). The tester identifies the Receiver (RX1 or RX2) where each event is detected.
3. As the test runs, you can click the BERT tab to inject and monitor the rate of bit errors reported. See the BERT tab, below, for a description of the available options.

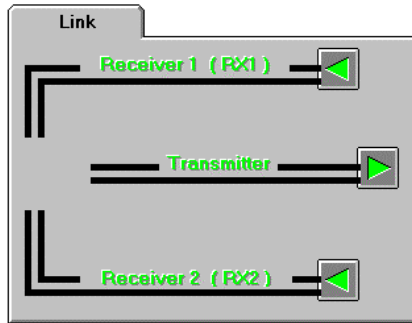


*You must have set up the test for the **Full** data rate before performing BERT testing. See “Defining a Single Test.”*

Click on **Stop** to abort the test

|  | Link |  | BERT | Test Matrix |
|--|------|--|------|-------------|
| <div style="border: 1px solid gray; padding: 5px; background-color: #f0f0f0; text-align: center; color: green; font-weight: bold;">Test In Progress</div> <div style="border: 1px solid gray; padding: 5px; margin-top: 10px; text-align: center;"><input type="button" value="Stop"/></div> |      |  |      |             |
| EVENT LOG - Elapsed Time : 00:00:00  |      |  |      |             |
| <p>Model: Conntech2000<br/>Ser# 111111<br/>Customer: CTP<br/>Tester: MG<br/>Data Rate: 19.6 Mbyte/s (Full)<br/>Data Size: 64 Byte Data<br/>Test Data: 2^15 -1</p> <p>12-10-2001 - 22:34:31 - Test Started</p>  |      |  |      |             |

Link tab



The Link tab displays the current link status by displaying the text and Link state indicators in the following colors.

- ⇒ **Black:** No Light Detected.
- ⇒ **Green:** Light Detected, No Errors Detected
- ⇒ **Red:** Light Detected, Errors Detected

BERT tab

The BERT tab interface includes a 'BERT' title bar. It features two columns for 'Last' and 'Total' data. The 'Rate' field shows '1.00E-03' for both. The 'Count' field shows '000,005,102' for 'Last' and '006,002,190' for 'Total'. Below these is a 'LOF' indicator (a gray circle) and a 'Reset' button. At the bottom, there is an 'Inject Error' section with radio buttons for 'Off', '10-3', and '10-5', and a 'Single' button.

The BERT tab displays the current status of the BERT test on RX1, TX1. The Bit errors and Bit Error Rates are displayed for the last sample and the total of all of the samples accumulated during the test.

- ⇒ **LOF:** Indicates whether the Bert analyzer is locked to the data stream. If **LOF** is red, then the Loss of Lock is indicated. The test is only valid if the analyzer is Locked, that is the **LOF** indicator is gray.
- ⇒ **Reset:** Click on the **Reset** button to reset **Rate** and **Count** displays.
- ⇒ **Inject Error:** Use this to inject errors in the data stream. This is useful for calibration before testing. This option is only available if the test is being run at the highest data rate, see “Defining the Test.”
- ⇒ **Single:** Click the **Single** button to inject a single Error in the Data Stream. **Single** is not available until the test is actually running. This option is only available if the test is being run at the highest data rate, see “Defining the Test.”

## Saving and Loading Single Test Setups

Once you define a test, you can save it to disk as a SET file for use during later sessions.



*The Tester software automatically recalls its setup from the previous session.*

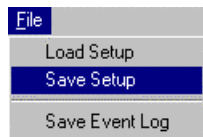
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### ⇒ To Save a Test Setup

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1. Click on the **File** menu and choose **Save Setup**.



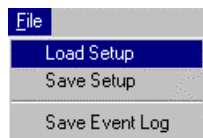
2. The Tester software displays a dialog to select a folder to save the setup file in. Navigate to a new folder, or accept the default.
3. Enter a new name and click on the **Save** button to store the setup file to disk.

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### ⇒ To Load a Trigger Setup

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1. Click on the **File** menu and choose **Load Setup**.



2. The Tester software displays a dialog to select the SET file to load.
3. Click on the **Open** button to load the setup file. Opening the SET file causes the test defined in the Tester window to reflect the loaded file.

### ⇒ To Save the Event Log to File

---

1. After running the test, you might want to save the Event Log to file for use in reports or other records. Click on the **File** menu and choose **Save Event Log**.



2. The software displays a dialog to select a folder to save the log file in. Navigate to a new folder, or accept the default.
3. Enter a new name and click on the **Save** button to store the log file to disk.






## Chapter 3 Multiple Test Mode

In addition to tests on a single data pattern, the Tester application lets you define a suite of up to ten tests. A suite of tests, also referred to as a *test matrix* or *test scenario*, can be run continuously or for a set time duration.


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 *Only Tester versions 5.10c and later support multiple test scenarios.*

---

Setting up the test consists of selecting **Setup Options**, entering **Test Information**, and defining up to ten tests comprising the test suite. Test Information you enter will be reported in the event log, along with the test results.

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 *Two devices can be simultaneously Link tested, but only one device can be Bert tested (RX1, TX1). The same set of test scenarios will be transmitted to both of devices for the Link Level test.*

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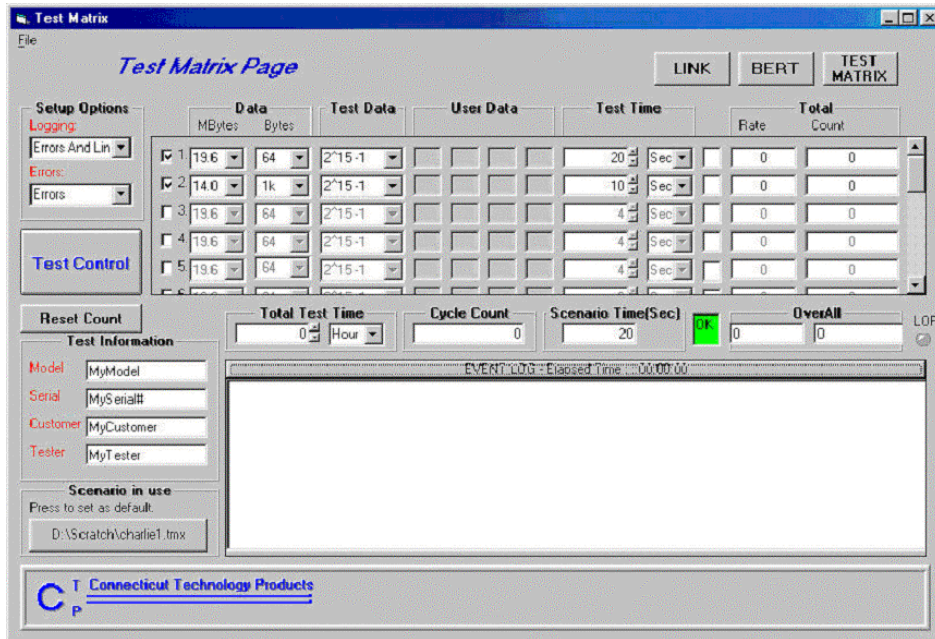
### ⇒ To Display the Test Matrix Page

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1. Click the Test Matrix tab of the Tester window. This tab contains a single large button. Click this button to display the Test Matrix Page window.



The Test Matrix Page appears.



## Defining Multiple Test Scenarios

### ⇒ To Set Up the Tests

1. Select a **Logging** option that determines what type of link-test information to report in the log.
  - ⇒ **OFF** – Disables Logging.
  - ⇒ **Errors Only** – Logs error conditions only.
  - ⇒ **Line State Only** – Logs Start, Stop, and Line state changes.
  - ⇒ **Errors and Line State** – Combines logging options



2. Select an **Errors** option that determines whether Bert-test information is reported in the log.
  - ⇒ **OFF** – Disables BERT error logging.
  - ⇒ **Errors** – Enables BERT error logging.

3. Enter the **Model** number of the device under test and its Serial number (**Ser #**).
4. Enter the name of your **Customer** and your name or initials (**Tester**).

⇒ **To Define BERT Data Patterns**

4. Select the checkbox for the first test you want to add to the test suite. Note that the list boxes and edit fields for the selected test row become activated.



*A selected checkbox, , next to a numbered test row indicates that test pattern is enabled in the test suite and will be run sequentially with the other tests enabled for that suite. After defining the test, you can remove it from the test suite at any time by clearing this checkbox.*

5. Select the data rate (**MBytes**) for this test pattern.

|  | Data   |       | Test Data | User Data |  |  | Test Time |       | Total |   |
|--|--------|-------|-----------|-----------|--|--|-----------|-------|-------|---|
|  | MBytes | Bytes |           |           |  |  | Rate      | Count |       |   |
| <input checked="" type="checkbox"/> 1. | 19.6   | 64    | 2^15-1    |           |  |  | 0         | Sec   | 0     | 0 |
| <input type="checkbox"/> 2.            | 19.6   | 64    | 2^15-1    |           |  |  | 0         | Sec   | 0     | 0 |
| <input type="checkbox"/> 3.            | 14.0   | 64    | 2^15-1    |           |  |  | 0         | Sec   | 0     | 0 |
| <input type="checkbox"/> 4.            | 2.1    | 64    | 2^15-1    |           |  |  | 0         | Sec   | 0     | 0 |

- Select the frame size (**Bytes**) for this test pattern.

|  | Data   |       | Test Data          | User Data |  |  |  | Test Time | Rate | Total Count |   |
|--|--------|-------|--------------------|-----------|--|--|--|-----------|------|-------------|---|
|  | MBytes | Bytes |                    |           |  |  |  |           |      |             |   |
| <input checked="" type="checkbox"/> 1. | 14.0   | 64    | 2 <sup>15</sup> -1 |           |  |  |  | 0         | Sec  | 0           | 0 |
| <input type="checkbox"/> 2.            | 19.6   | 64    | 2 <sup>15</sup> -1 |           |  |  |  | 0         | Sec  | 0           | 0 |
| <input type="checkbox"/> 3.            | 19.6   | 256   | 2 <sup>15</sup> -1 |           |  |  |  | 0         | Sec  | 0           | 0 |
| <input type="checkbox"/> 4.            | 19.6   | 1k    | 2 <sup>15</sup> -1 |           |  |  |  | 0         | Sec  | 0           | 0 |

- Select a standard pattern from the **Test Data** list. Each item in the list is self-descriptive; for example, choosing **2<sup>15</sup>-1** defines a binary pattern equivalent to the value ( $2^{15} - 1$ ).

As an alternative, you can select one or more user bytes (**UB 1**, **UB 2**, **UB 3**, or **UB 4**) from this list to define a custom test pattern.

Depending on the items you select from the list, the corresponding number of **User Data** field becomes activated.

|  | Data   |       | Test Data          | User Data |  |  |  | Test Time | Rate | Total Count |   |
|--|--------|-------|--------------------|-----------|--|--|--|-----------|------|-------------|---|
|  | MBytes | Bytes |                    |           |  |  |  |           |      |             |   |
| <input checked="" type="checkbox"/> 1. | 14.0   | 256   | 2 <sup>15</sup> -1 |           |  |  |  | 0         | Sec  | 0           | 0 |
| <input type="checkbox"/> 2.            | 19.6   | 64    | 40's               |           |  |  |  | 0         | Sec  | 0           | 0 |
| <input type="checkbox"/> 3.            | 19.6   | 64    | 2 <sup>15</sup> -1 |           |  |  |  | 0         | Sec  | 0           | 0 |
| <input type="checkbox"/> 4.            | 19.6   | 64    | 2 <sup>20</sup> -1 |           |  |  |  | 0         | Sec  | 0           | 0 |
| <input type="checkbox"/> 5.            | 19.6   | 64    | 2 <sup>23</sup> -1 |           |  |  |  | 0         | Sec  | 0           | 0 |
| <input type="checkbox"/> 6.            | 19.6   | 64    | UB 1               |           |  |  |  | 0         | Sec  | 0           | 0 |
|  |        |       | UB 2               |           |  |  |  | 0         | Sec  | 0           | 0 |
|  |        |       | UB 3               |           |  |  |  | 0         | Sec  | 0           | 0 |
|  |        |       | UB 4               |           |  |  |  | 0         | Sec  | 0           | 0 |



To activate all four **User Data** fields, select **UB 4** from the **Test Data** list. Enter a hexadecimal value into each activated **User Data** field. The activated fields together define the custom user data. Any bytes left disabled or undefined are assigned all 00's.

|  | Data   |       | Test Data          | User Data |  |  |  | Test Time | Rate | Total Count |   |
|--|--------|-------|--------------------|-----------|--|--|--|-----------|------|-------------|---|
|  | MBytes | Bytes |                    |           |  |  |  |           |      |             |   |
| <input checked="" type="checkbox"/> 1. | 14.0   | 256   | UB 1               | A0        |  |  |  | 0         | Sec  | 0           | 0 |
| <input type="checkbox"/> 2.            | 19.6   | 64    | 2 <sup>15</sup> -1 |           |  |  |  | 0         | Sec  | 0           | 0 |

- Enter a value in the **Test Time** edit box. You can enter a value manually, or adjust the existing value using the nearby spin control (◆). After entering a duration value, select a time unit from the list to the immediate right of the spin control. The **Test Time** assigns the time duration for particular test within a single run of the entire test suite. Note that the entire test suit can be run multiple times during a testing session. The Test Matrix page displays the sum of the **Test Times** for all enabled tests in the display-only **Scenario Time** field.

The unlabelled box to the left of the **Rate** field is the status indicator for the corresponding test row. See “Event Log Display” for an explanation of the color coding scheme for this status indicator.

The Total **Rate** and **Count** are display-only fields that report the calculated Bit error rate and an absolute count of total Bit errors accumulated while testing with the selected pattern. The background color of these fields flashes green when the corresponding test is being executed.

|  | Data   |       | Test Data          | User Data |  |  | Test Time |      | Total |       |
|--|--------|-------|--------------------|-----------|--|--|-----------|------|-------|-------|
|  | MBytes | Bytes |                    |           |  |  |           |      | Rate  | Count |
| <input checked="" type="checkbox"/> 1. | 14.0   | 256   | UB 1               | A0        |  |  | 12        | Hrs  | 0     | 0     |
| <input type="checkbox"/> 2.            | 19.6   | 64    | 2 <sup>15</sup> -1 |           |  |  | 0         | Sec  | 0     | 0     |
| <input type="checkbox"/> 3.            | 19.6   | 64    | 2 <sup>15</sup> -1 |           |  |  | 0         | Hrs  | 0     | 0     |
| <input type="checkbox"/> 4.            | 19.6   | 64    | 2 <sup>15</sup> -1 |           |  |  | 0         | Days | 0     | 0     |

- Repeat steps 4 – 8 above to add more test patterns to your test suite. You can define up to ten tests per suite; i.e., ten tests per test matrix.

To disable any of the tests in this suite, deselect their checkboxes on the left side of the Test Data column. In this way, you can define tests in the scenario without necessarily executing those tests.

To save the defined suite to file for future use, choose **Save Test Matrix** from the **File** menu. In the Save dialog, navigate to the folder where you want to save the test suite, enter a name for the new file, and click the **Save** button. In future sessions, you can load the test suite from that file by choosing **Load Test Matrix** from the **File** menu.



*The name of the Test Matrix file just saved, or loaded, appears on the **Scenario in Use** button. You can set up the Tester so it automatically loads the test scenario from this file on startup by clicking the **Scenario in Use** button.*

## Test Matrix Page

|                     | Control  | Definition   |
|---------------------|----------|--|
| Setup<br>Options    | Logging  | <p>Choose a logging option from this list:</p> <ul style="list-style-type: none"> <li>⇒ <b>OFF</b> – Disables Logging.</li> <li>⇒ <b>Errors Only</b> – Logs error conditions only; e.g.,<br/> <b>CRC</b><br/> <b>CODE VIOLATION</b><br/> <b>EOF CHARATER</b><br/> <b>SOF CHARACTER</b><br/> <b>ORDER SEQUENCE</b><br/> <b>CONSECUTIVE IDLES DETECTED</b><br/> <b>ERROR CLEARED</b></li> <li>⇒ <b>Line State Only</b> – Logs Start, Stop, and Line State changes; e.g.,<br/> <b>NO LIGHT</b><br/> <b>LIGHT</b><br/> <b>NOS</b><br/> <b>IDLE</b><br/> <b>UD</b><br/> <b>UDR</b><br/> <b>DATA</b><br/> <b>OFFLINE</b><br/> <b>DATA IDLE</b></li> <li>⇒ <b>Errors and Line State</b> – Combines error ad lines state logging options.</li> </ul> |
|                     | Errors   | <p>Choose a BERT error logging option:</p> <ul style="list-style-type: none"> <li>⇒ <b>OFF</b> – Disables BERT error logging.</li> <li>⇒ <b>Errors</b> – Enables BERT error logging.</li> </ul>  |
| Test<br>Information | Model    | Enter the model number of the ConnTech 2000 ESC.   |
|                     | Serial   | Enter the serial number of the ConnTech 2000 ESC.  |
|                     | Customer | Enter the name of the customer who's systems are under test.   |
|                     | Tester   | Enter your name or initials.   |

|                 |                                     |   |
|-----------------|-------------------------------------|---|
| Scenario in Use | [path to test matrix]               | The path and file name of the Test Matrix file most recently loaded or saved appears on the <b>Scenario in Use</b> button. You can set up the Tester so it automatically loads the test scenario from this file on startup by clicking the <b>Scenario in Use</b> button.   |
|                 | <input checked="" type="checkbox"/> | <p>Select the checkbox at the left side of each individual test row to enable the test pattern defined there.</p> <p>All enabled tests are run together as the current test suite; i.e., the loaded test matrix file. You can define and enable up to ten tests per test suite.</p> <p>Tip: Use the scrollbar at the right side of the test list to display test rows hidden from view.</p> |
| Data            | MBytes                              | Select a data rate, in megabytes, for the selected test pattern.  |
|                 | Bytes                               | Select the frame size, in bytes, for the selected test pattern.   |
|                 | Test Data                           | <p>Select a standard pattern from the <b>Test Data</b> list, or select the number of user bytes (<b>UB 1</b>, <b>UB 2</b>, <b>UB 3</b>, or <b>UB 4</b>) that you want to define for your custom test pattern.</p> <p>Tip: To activate all four <b>User Data</b> fields, select <b>UB 4</b> from the list.</p>   |
|                 | User Data                           | If you selected a user byte item ( <b>UB 1</b> , <b>UB 2</b> , <b>UB 3</b> , and <b>UB 4</b> ) from the <b>Test Data</b> list, enter a hexadecimal value for the corresponding number of bytes within your custom test pattern.   |
| Test Time       | [duration [unit]]                   | Enter a duration value into the <b>Test Time</b> edit box, then select a time unit from the nearby list or accept the default time unit ( <b>Sec</b> ).   |

## Tester v5.10c Addendum

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[status]

The status indicator for a test row is the rectangular field between the **Test Time** and **Total** columns.

- ⇨ This field appears white before running the test.
- ⇨ If there are no problems after the test starts, the field appears green.
- ⇨ If an error has occurred for that test, the field appears red.
- ⇨ A black color indicates Loss of Light.
- ⇨ A magenta color indicates a loss of communication over the serial link.

After indicating a problem, the status field remains red, black or magenta until you resolve the underlying problem. At that point, you can click on the status field to change the indicator to white, at which point the color of the indicator will be determined by the conditions described above.

 Total Rate

After testing starts, this display-only field reports the calculated Bit error rate for the selected pattern.

The background color of the **Rate** and **Count** fields blinks green when the corresponding test is being executed.

Count

After testing starts, this display-only field reports the total count of Bit errors accumulated during the test for the selected pattern.

 Click on **Halt** to abort the test

Test Control

This button has two states. Initially, it displays **Start** on its face, and is used to run the enabled tests. After the test suit is running, the button face changes to **Halt**. Pressing the button at this point stops testing and causes a halt request dialog box to appear.

Reset Count

Resets all Total **Rate** and **Count** display-only fields to zero.



Only the display fields are cleared, not the internal accumulators.

---



|                       |  |
|-----------------------|--|
| Total Test Time       | Enter a value into the edit box to set the time duration for running the entire test suite. Then select a time unit from the nearby list or select <b>Loop Continuously</b> from this list run the test suite continuously.  |
| Cycle Count           | This display-only field reports the number of completed test cycles (i.e., of the entire suite) that have been run since clicking the <b>Test Control</b> button.  |
| Scenario Time (Sec)   | This display-only field calculates the total time, in seconds, required to run just one complete cycle of all enabled tests once through.  |
| [overall status] (OK) | <p>Displays the overall status of the test suite. If any of the individual tests have failed, the letter <b>E</b> appears here with a red background color. Otherwise, this field displays <b>OK</b> with a green background color.</p> <p>As long as the status indicators of all the individual tests within the suite are green, you can reset the overall status field from red back to green by clicking on this field.</p> |
| OverAll               | <p>The last two display-only fields report</p> <ul style="list-style-type: none"><li>⇨ the aggregate Bit Error Rate (the total of all errors divided by total of all bits transmitted), and</li><li>⇨ the Total Number of all errors</li></ul> <p>that occurred for all tests since you clicked the <b>Test Control</b> button to start.</p>   |
| LOF                   | This indicator lamp appears on the extreme right of each test row. If red, this indicates a loss of frame. In that case, data acquisition has been lost and the test should be halted.   |
| EVENT LOG             | This area provides elapsed-time counter for the test while running and displays up to 500 lines of logging information that can optionally be saved to file.   |
| LINK                  | Click this button to return to the Tester window, with LINK tab active.  |
| BERT                  | Click this button to return to the Tester window, with the BERT tab active.  |

## Performing Tests

While running the tests, you cannot change testing options until the testing is completed or halted. You can click the **Reset Count** button to zero the **Rate** and **Count** fields of all the tests at any time, and scroll through the event log as it is being created. You can also change the **Setup Options** in mid-test by clicking **Halt**, but those changes are not applied until the next test begins by clicking the **Press to resume with next sub-test** button.

While the test is halted, you can enable/disable individual tests by selecting or clearing the checkboxes on the left side of each test row. You can also adjust any of the user-configurable parameters for any enabled row.



If the row was enabled during run time, disable it, then enable it, before changing row parameters.

---

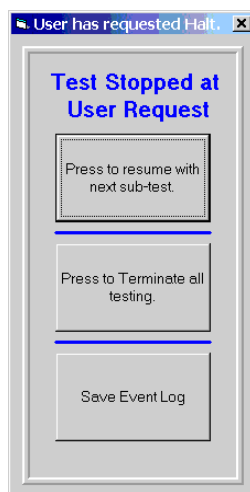
---

### ➤ To Start the Test

---

1. After defining tests or loading a suite of tests from a file, click the **Test Control** button to run the tests enabled on the Text Matrix page.

After the tests start running, the face of this button changes to **Halt**. You can click the **Halt** button at any time to stop testing. This action stops the test currently running and causes a halt request dialog box to appear.



- |                                    |  |
|------------------------------------|--|
| Press to resume with next sub-test | Click this button to continue testing. The test suite continues, starting with the next enabled following the test that was halted (even if that test had not run for its entire <b>Test Time</b> duration). |
| Press to Terminate all testing     | Click this button to stop testing and return to the Test Matrix page.  |
| Save Event Log                     | Click this button to save the event log to file containing logging information from the start of testing up to the time when you halted the test.  |



*Only logging information accumulated since the test was started, or last resumed (after a **Halt**), will be saved.*

See “Saving and Loading Multiple Test Setups” for more information on saving the event log.

- As testing proceeds, the Event Log area displays the results of each test. Display-only fields on the Test Matrix page report the error **Rate**, total error **Count** for each test, and the number of complete test suite **Cycles** run so far. Indicators display the individual status for each test (green, red, black, or magenta); the **Overall** status (**OK/E**), **Rate**, **Count**, and report any loss of Frame (**LOF**). See “Event Log Display” for a description of the significance of these status indicator colors.

The screenshot displays the test software interface. At the top is a test matrix table with columns for test ID, data rate, data size, test data, error rate, error count, and status. Below the table are summary statistics for Total Test Time (20 Sec), Cycle Count (1), Scenario Time (10 Sec), and Overall status (OK). At the bottom is an Event Log window showing the following text:

```

EVENT LOG - Elapsed Time ::00:00:23
Tester: MG
Data Rate: 19.6 Mbyte/s (Full)
Data Size: 64 Byte Data
Test Data: 2^20-1
12-10-2001 - 20:47:38 - Test Started - Cycle: 2 - Row: 2
12-10-2001 - 20:47:38 - RX1 - DATA Detected
12-10-2001 - 20:47:38 - RX2 - DATA Detected
12-10-2001 - 20:47:42 - OverAll Rate: 0.00E+00 OverAll Count: 000,000,000
12-10-2001 - 20:47:42 - Test Stopped - Cycle: 2 - Row: 2
    
```

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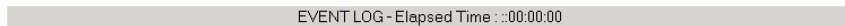
When the **Total Test Time** is reached, the test suite ends and the following dialog box appears. Click **OK** to return to the Test Matrix page.



3. After running a test suite, you can optionally save the event log to file for future reference, see “Saving and Loading Multiple Test Setups.”
4. When done running test suite, click the **LINK** or **BERT** button, at the upper right of the Test Matrix Page, to return to the main Tester window.

## Event Log Display

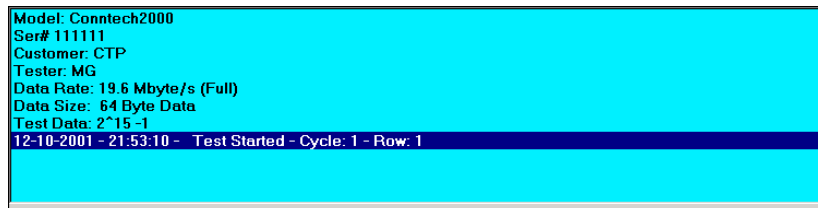
At the top of the event log (large white area at the bottom of the Test Matrix page), you will see the Event Log Bar.



While the tests are running, the Event Log Bar displays the elapsed time since the **Test Control** button was clicked.

The Event Log area, below the Event Log Bar, displays the defined **Test Information**, followed by up to 500 lines of time-stamped events (Start, Stop, Line Status and Error conditions). The types of messages displayed are selected in **Setup Options**, see “Defining the Test (Test Matrix).”

The background color of the Event Log is white before running a test suite. The background color turns aqua briefly to indicate when a test has started.



While the tests are running, the individual status indicators for each test row report the link states by changing background color. The overall status indicator field, between the **Scenario Time** and **Overall** fields, displays the same color as the individual status indicator for the test currently being run.

|         |  |
|---------|--|
| Magenta | A change to a magenta background color indicates a loss of communication over the serial port. To clear this error, verify that the serial port connections are correct and that the ConnTech 2000 is powered on (see Chapter 3, “Hardware Installation” in the ConnTech 2000 ESCON User's Guide). Then, press the <b>Halt</b> button and click the <b>Press to resume with the next subtest</b> button to continue with the next test pattern in the suite. |
| Black   | A change to a black background color indicates NO LIGHT.   |
| Red     | A change to red indicates that the Tester detects Light on the matching link, but that errors are detected.  |
| Green   | A change to green indicates that the Tester detects LIGHT on the matching link.  |

If the background color fails to change, you may be setup with the wrong COMM port selected, see “Port Setup” below to remedy this condition. See “Defining the Test,” below, to continue the test procedure. A NO LIGHT condition can also be caused by overdriving or underdriving the optical receiver. See the “Specifications” on page 5 of the ConnTech 2000 ESCON User's Guide.

## Saving and Loading Multiple Test Setups

Once you define a multiple test, you can save it to disk as a TMX file for use during later sessions. You can also save the event log for completed tests to file.



*The Tester software automatically recalls its setup from the previous session.*

---

### ⇒ To Save the Event Log to File

---

1. After running the test, you might want to save the Event Log to file for use in reports or other records. From the main menu of the Test Matrix page, click the **File** menu and choose **Save Event Log**.

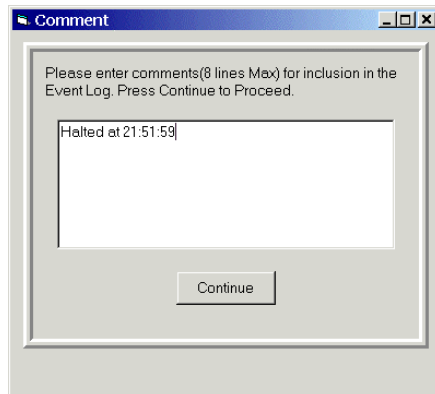


*You can access this option from the Tester window or from the Test Matrix page.*

---



2. A Comments dialog box appears. If desired, enter a comment to be placed at the top of the event log. Click the **Continue** button.



3. The software displays a dialog to select a folder to save the log file in. Navigate to a new folder, or accept the default.
4. Enter a new name and click on the **Save** button to store the log file.



**Save Event Log** only saves the **Test Control** logging information that occurred since the last time you saved the Event Log during the current session. Saving the event log under the name of an existing log file replaces the old file contents with the new logging information.

Tip: Save each log file under a different name (filea, fileb, filec, etc.). You can concatenate multiple logging files generated by a test run by entering the DOS COPY command from the command prompt. The way you access the command prompt depends on which operating system installed on your PC.

- ❖ In Windows 95/98: Choose **Programs:MS-DOS Prompt** from the Windows **Start** menu.
- ❖ In Windows NT/2000: Choose **Programs:Accessories** from the Windows **Start** menu. Then choose **Command Prompt**.

Enter the following command:

```
c:> COPY filea.txt + fileb.txt + filec.txt bigfile.txt
```

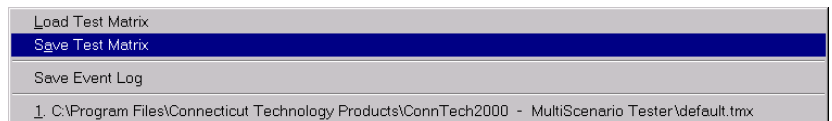
The syntax above assumes that log files are in the root directory. Otherwise, change (**cd directoryname**) the to the directory containing the log files before entering the copy command.

---

### ❖ To Save a Test Matrix to File

---

1. After defining a multiple scenario test, you might want to save this suite of tests to file for future tests. From the main menu of the Test Matrix page, click the **File** menu and choose **Save Test Matrix**.

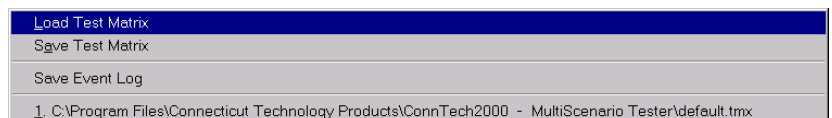


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### ❖ To Load a Test Matrix

---

1. From the main menu of the Test Matrix page, click the **File** menu and choose **Load Test Matrix**.



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As a convenience, the most recently accessed test files appear as items at the bottom of the **File** menu, and can be selected to quickly reload a recent test.

As delivered, the Tester will display “Default.tmx” on the **Scenario in Use** button, indicating that the default factory settings are loaded into the Test Matrix page. However, you can load an alternate test suite previously saved to file. If you want your alternate test suite to load automatically when you open the Tester, click the **Scenario in Use** button



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|                            |        |            |    |
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