easy-wire® Software Manual

for CH2 & CR Testers

CIRRIS SYSTEMS

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1. Setup

Important Terms in this Section

Hardware Status Update –Appears when powering easy-wire to notify of hardware information or problems.

Help System – A digital guide accessed by clicking the help button in the easy-wire software.

Master Login – This login gives access to all areas of easy-wire where other logins can be limited for security purposes.

1.1 Cirris Customer Support

For assistance with your easy-wire software, you may:

- Click the **Help** button at anytime to be taken to the **Help System**.
- Visit www.cirris.com/learning-center to read articles on Cirris software and other testing subjects.
- Contact our technical support team:
  - In the USA, call 1-800-441-9910 toll-free.
  - Outside the USA, visit our Cirris website at www.cirris.com to find the Cirris office nearest to you.

1.2 Computer Requirements for easy-wire

Computers that run the easy-wire software must meet the following requirements:

- 2.0 GHz min. processor speed
- Windows 7®, or Windows 8.1®
- 15 GB hard drive space
- 4 GB RAM
- 256 MB min. video memory
- 1024 x 768 min display resolution
- sound (for audible feedback)
- USB 2.0 or 3.0 port
- Internet Connection not required, but if available internet can facilitate support issues

1.3 Installing easy-wire Software

1. Exit all running Windows applications.

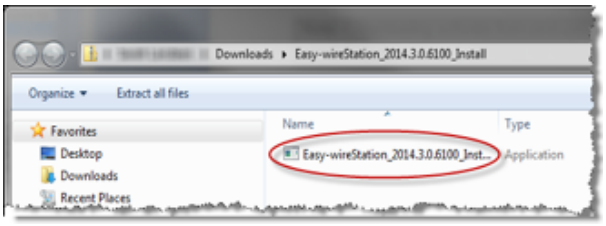
2. Cirris offers multiple methods for obtaining easy-wire software for installation. The most common are flash drive/CD or

downloading the software from our easy-wire page on cirris.com.

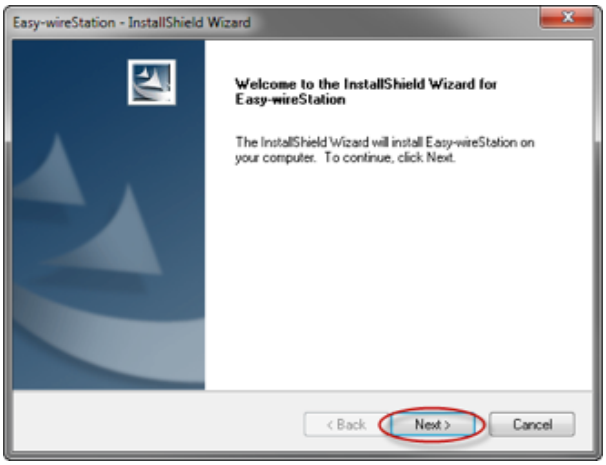
3. On your PC, insert the Cirris thumb drive into a USB port, place the CD in the drive, or click **download** on the easy-wire page on cirris.com.

   Note: *If downloading software from cirris.com, contact your Cirris representative for a password and further instructions on installing the software.*

4. Navigate to the file location and open the file to begin the install.



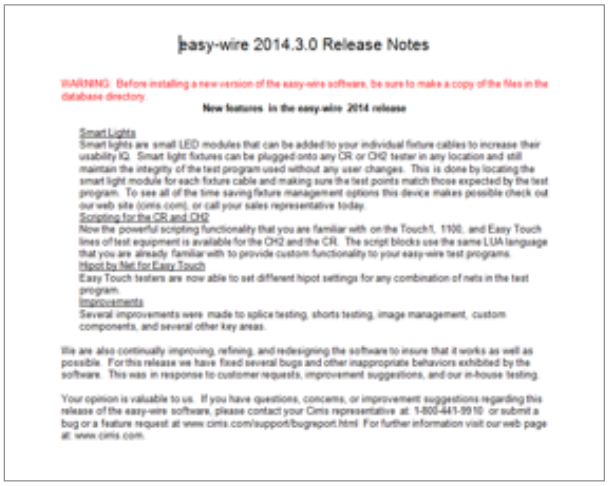
5. Continue through the installation by clicking **Next**.



6. Be sure to read the terms and conditions before accepting the terms of the license agreement. When prompted to choose a destination location, use the provided default location.

   Note: *When prompted, continue the installation of the driver and software for the Silicon Labs USB to UART device.*

7. A readme file will automatically open. You can read the file if desired. It describes the newest features and release notes for your version of easy-wire software. When you are ready to continue, close the window to complete the installation.



easy-wire 2014.3.0 Release Notes

WARNING: Before installing a new version of the easy-wire software, be sure to make a copy of the files in the database directory.

New features in the easy-wire 2014 release

Smart Lights
Smart lights are small LED modules that can be added to your individual fixture cables to increase their usability IQ. Smart light fixtures can be plugged onto any CR or CH2 tester in any location and still maintain the integrity of the test program used without any user changes. This is done by locating the smart light module for each fixture cable and making sure the test points match those expected by the test program. To see all of the time saving fixture management options this device makes possible check out our web site (cirris.com), or call your sales representative today.

Scripting for the CR and CH2
Now the powerful scripting functionality that you are familiar with on the Touch1, 1100, and Easy Touch lines of test equipment is available for the CH2 and the CR. The script blocks use the same LUA language that you are already familiar with to provide custom functionality to your easy-wire test programs.

Hipot by Net for Easy Touch
Easy Touch testers are now able to set different hipot settings for any combination of nets in the test program.

Improvements
Several improvements were made to splice testing, shorts testing, image management, custom components, and several other key areas.

We are also continually improving, refining, and redesigning the software to insure that it works as well as possible. For this release we have fixed several bugs and other inappropriate behaviors exhibited by the software. This was in response to customer requests, improvement suggestions, and our in-house testing.

Your opinion is valuable to us. If you have questions, concerns, or improvement suggestions regarding this release of the easy-wire software, please contact your Cirris representative at 1-800-441-9910 or submit a bug or a feature request at www.cirris.com/support/bugreport.html. For further information visit our web page at www.cirris.com.

8. After installation, the **easy-wire** icon will appear on your desktop.

1.4 Opening easy-wire

1. Double-click the **easy-wire** icon to open the software. The first time you open the software it may take longer to load.

Note: *If you can't find the* ***easy-wire*** *icon, look for the* ***easy-wire*** *title on your desktop (when you first install easy-wire, the icon may look different from the image above). If the easy-wire icon is not on your desktop, from the Windows task bar, click* ***Start,All Programs, Cirris Systems Corporation, easy-wire, easy-wire****.*

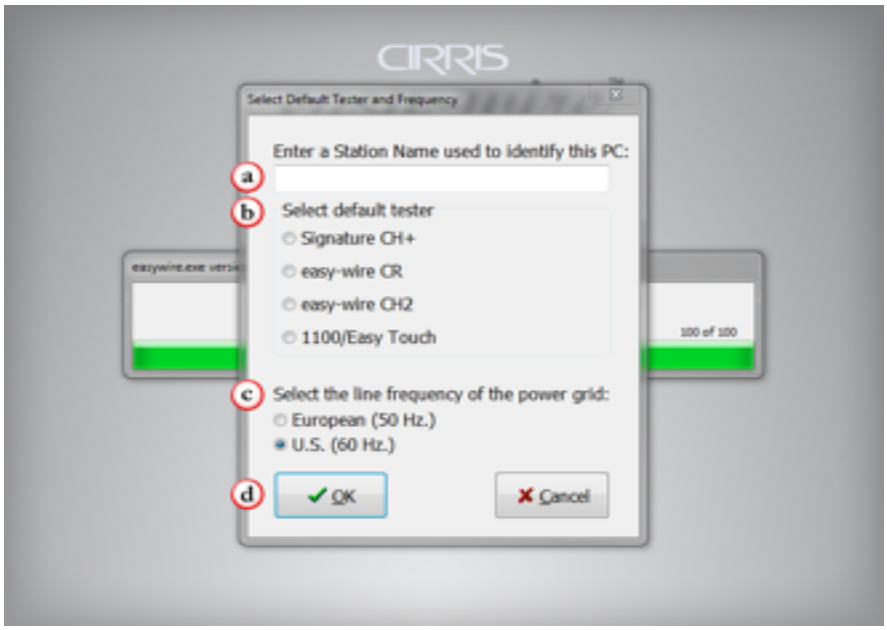
2. The first time you open the software, the **Select Default Tester and Frequency** window will open:

   a. Click the text box and enter a station name used to identify this PC.

   b. Select the tester you are using.

   c. Select your line frequency.

   d. Click **OK**.

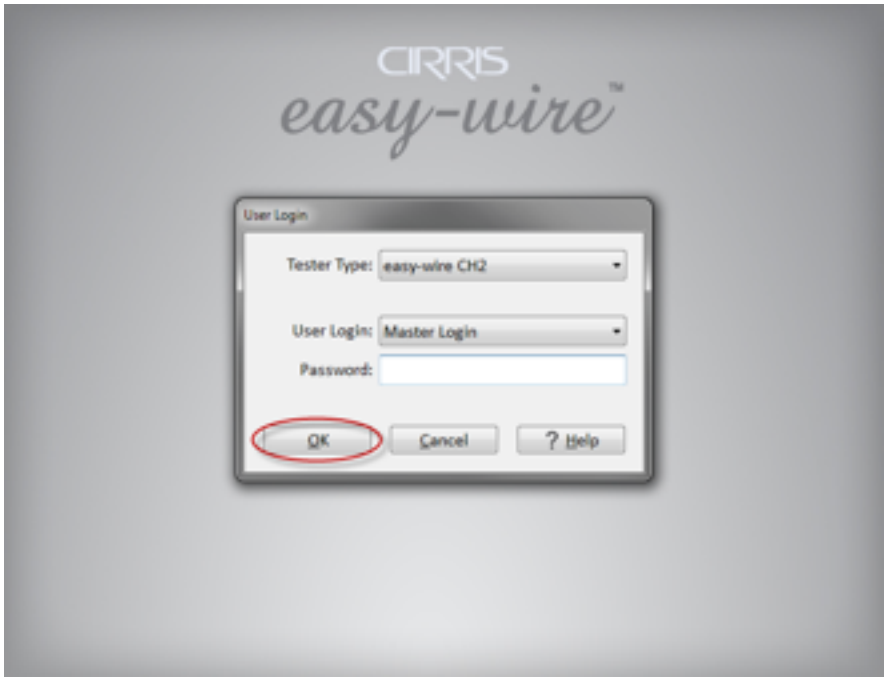


Note: *You must select a tester when opening easy-wire for the first time. However, if you are using the software on multiple testers, see page 73 for information on selecting a tester type when later logging into the software.*

3. The **User Login** window will open. Select **Master Login** in the **User Login** field.

   You do not need to enter a password the first time. To learn how to set up a password, and other security options, see *page 79*.

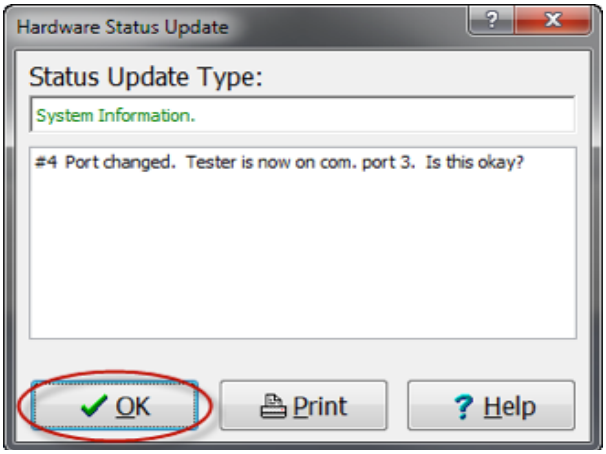
   Click **OK**.



4. If the **Hardware Status Update** window opens, click **OK**.

   This window is normal on install or when any changes are made to the hardware or software.

   Note: *This window notifies of system information or problems. At the top of the box the update type is displayed, indicating either* ***System Information*** *or* ***System Problem****. Below the type field the update message is displayed. For more information on potential Hardware Status Updates, see the Help System.*



5. The easy-wire Main Menu will open.

2. Main Menu

From the easy-wire Main Menu, you can reach the submenus for registering connectors, setting up a test, editing, verifying, testing, and accessing system utilities.

Important Terms in this Section

Add-on Scanners – Scanners that can be added to the tester to increase the point count.

Device-under-test (DUT) – The cable, harness, or other assembly that is being tested by the cable tester. This is referred to by some as the Unit-Under-Test.

Earth Ground Point System (EGPS) – A mechanism for allowing the CH2 to test devices connected to earth ground.

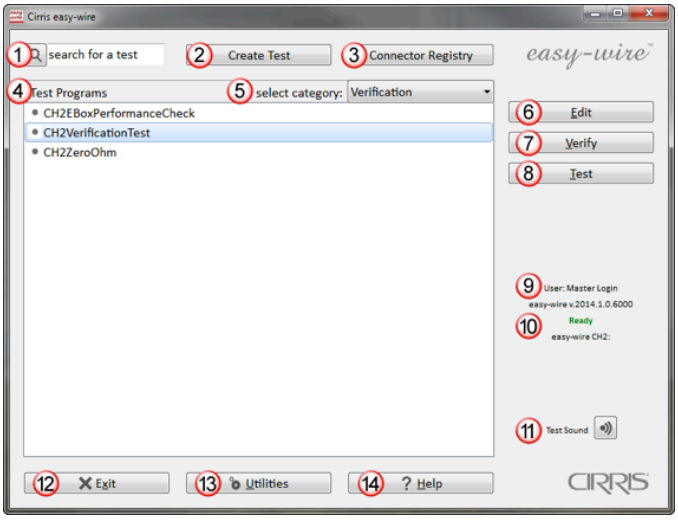
Fixturing – The set of wires and connectors that connect the device-under-test to the tester.

Pin-Sight – Cirris product that helps accurately insert each wire in the correct cavity of a connector.

Scanners – A set of test points.

Test Points – A connection on the tester which may be attached to a DUT connection through fixturing.

Test Program – The set of information defining the tests to be performed on a DUT. This includes information on the connector of the DUT, connections between connector pins (test instructions), test parameters, etc.



1. **Search for a Test:** To search for a test, type all or a portion of the characters of the desired test program name in the adjacent box. Press F3 until you encounter your test. The search is NOT case sensitive. Make sure you have the correct category selected when you do the search.
2. **Create Test** *(page 19)*: Set up test programs by selecting connectors, voltage, and other parameters.
3. **Connector Registry** *(page 7)*: Manage (add, create, delete) connectors. These connectors are used to define connectors used in test programs.
4. **Test Program List:** Choose a test program in this list before selecting Edit, Verify, or Test.

   Note: *Right click options for Test Program List:*

   - *Delete the program*
   - *Assign/change its category*
   - *Create a New Parent Test*

   Other right click options may appear depending on the software you have installed. For example, Second End Pin with Pin-Sight will appear if you have Pin-Sight software installed.

   WARNING! *There is no undo function if you delete a test program. However, you can restore the database if the test program was in the last backup. (See page 77) Also, if you have periodically exported test programs to text files, you can re-import them. (See page 88.)*

5. **Select a New Category:** Select a category to filter the Test Program List.
6. **Edit** *(page 29)*: Make changes to existing test programs.
7. **Verify** *(page 41)*: Verify the activities related to a test program, fixturing, or tested assembly. For example, probe your

fixturing and test your interface to ensure correct mapping.

8. **Test** *(page 47)*: Run a test program.

   Note: *The Edit, Verify, and Test submenus must have a test program selected and a tester attached to be active. If these menus are disabled, check that you have selected a test program from the Test Program List and your tester is correctly functioning and connected to your computer.*

9. **User and easy-wire Version Number:** Identifies which user is logged in and the software version number (needed when contacting Cirris with questions or upgrades).

10. **Status Indicator (Ready):** If the status indicator displays Ready, the tester is working and is ready for use. If the status indicator displays Error, the tester failed one or more of the self tests.

    Note: *Below the Status Indicator you will find tester information including:*

    - *Tester type*
    - *Number of test points*
    - *Voltage of the tester and additional add-on scanners*
    - *Other attachments such as EGPS (Earth Ground Point System)*

    It is important to verify that this information is correct and that, if applicable, all add-on scanners and other attachments are connected.

11. **Test Sound:** Sound can be useful for the operator to recognize errors and test status as well as when using the Text to Speech feature *(page 74)*.

    The check sound, click the sound button.

    You should hear two trumpet sounds. If you do not hear the sounds or want to change the volume, see *page 75*.

12. **Exit:** Quit easy-wire (X in top right corner also quits easy-wire).

13. **Utilities** *(page 71)*: Perform a variety of tasks relating to the setup and maintenance of the easy-wire system such as security, reports, database maintenance, and more.

14. **Help :** Access the easy-wire help system or find information about your version of easy-wire.

3. Connector Registry

In the Connector Registry, you can create connectors and splices that are used later to define test programs. f

Important Terms in this Section

Cirris Connector Generator – A feature that automatically generates information and images for connectors belonging to various circular and D-subminiature series.

Cirris Networking Made Easy Software – Enables stand-alone testers to share tests stored to a network location.

Connector – The piece of fixturing that mates with the device-under-test.

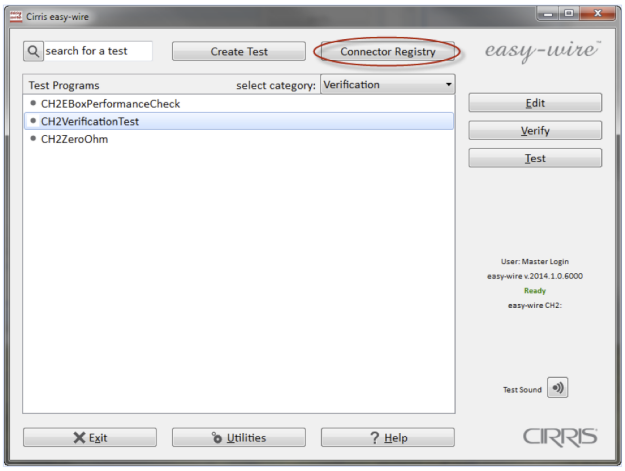
easy-wire Adapters – Special adapters assembled with a bi-colored LED and a USB connector that plug into an easy-wire transition board. When used with a CR tester, they provide wired mating connectors for your harness board.

Fast Attach Connector – An easy-wire connector that speeds up the process of attaching connectors by allowing you to map a connector's points to the tester's points.

Ground Pin – Another name for a pin attached to the shell or housing of a connector.

Pin Count – The number of pins in a connector.

Splice – Wire junctions in cables and wire harnesses that do not connect to a test point.



3.1 Connectors

Main Menu | Connector Registry | Connectors

1. **Create Connector:** To learn how to create connectors, see *page 8*.

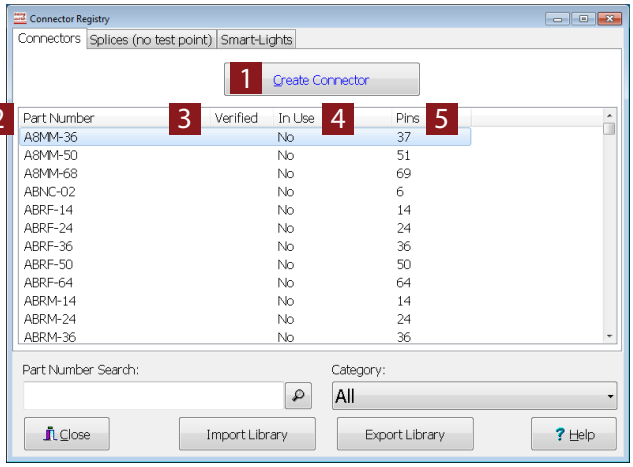
2. **Part Number:** Identifies each connector created in easy-wire.

3. **Verified:** Displays a number when the connector is a Fast Attach Connector. The number indicates how many times the connector and other connectors identical to it have been verified by probing (see *page 41*). This does not ensure that any one particular connector went through the verification process, but it at least tells how many times the process happened.

4. **In Use:** Shows whether a connector is being used in a test program. The In Use status can be any of the following:

   - **Yes:** Used by a Test Program
   - **No:** Not used by a Test Program
   - **System:** Indicates the connector will be used when no fixturing has been defined. (This connector can be changed in System Settings – *page 72*.)
   - **Incomplete:** All pins have not been placed in the graphic.

5. **Pins:** Displays the total pin count (including an optional ground pin) defined when the connector was created.



Note: *To sort the columns in alphabetical/chronological order, click on the column headings. An alternate way to search is to select the top connector in the list and then type the first letter or number of the part number you are searching for.*

6. **Part Number Search:** To search for a connector, type all or a portion of the characters of the desired connector name in the adjacent box. Press F3 until you encounter your test. The search is NOT case sensitive.

   You can also search for connectors belonging to various circular or D-Subminiature series (Cirris Connector Generator) by typing in the exact mil spec part number of the connector and pressing Enter or F4. If the connector belongs to one of the series, a search for these connectors will automatically add them to the Connector Registry. They will be identified by a ~ symbol in front of the connector name. See *page 10* for a full list of connectors included in this feature.

   Note: *If you do not find the connector you are looking for, try changing the category to All.*

7. **Category:** To avoid searching long library listings, add categories to help organize connectors (see *page 83* to learn how to creat new categories).

8. **Import/Export:** Import or export connectors from an ASCII text file. This can be used as part of transferring information from one tester to another when not using easy-wire's networking feature. The imported connectors are placed in the Connector Registry for general use in a test program.

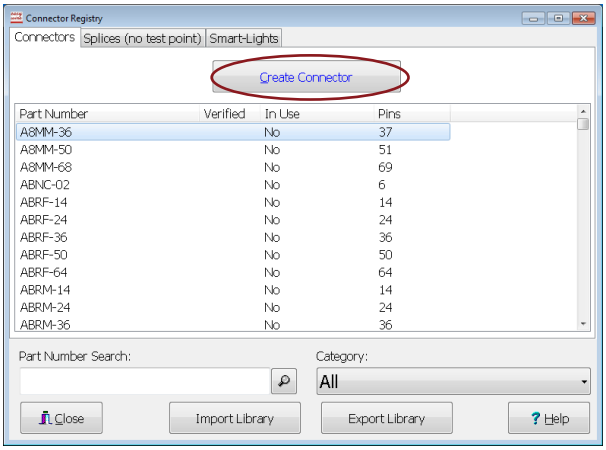
   Note: *Networking Made Easy allows you to edit and manage test programs and connectors from one central location for all test stations. Go to www.cirris.com and search for Networking Made Easy or call your Cirris representative for more information.*

3.1.1 Create a New Connector

Main Menu | Connector Registry | Connectors | Create Connector

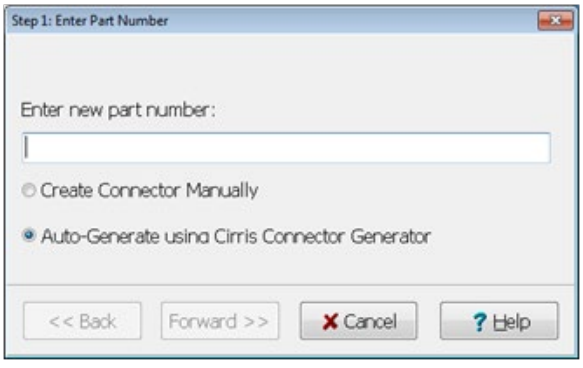
Before performing a test, the software must know which connectors to look for. Some connectors are provided with easy-wire while others you will create.

Click **Create Connector**.



In the window that opens, type in the part number for the new connector.

- Create Connector Manually – register a connector by manually entering all information about a new connector.
- Auto-Generate using Cirris Connector Generator – load a connector using the Cirris Connector Generator (see *page 10*).

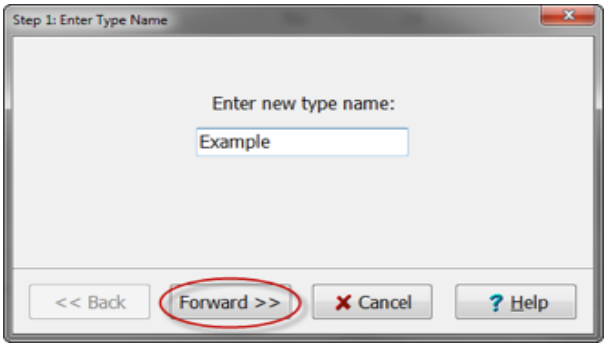


■ *Create Connector Manually*

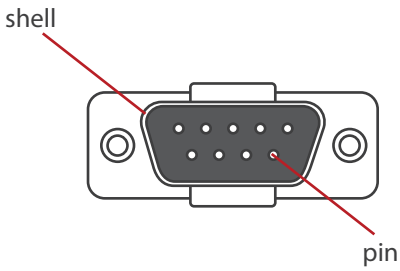
Main Menu | Connector Registry | Connectors | Create Connector

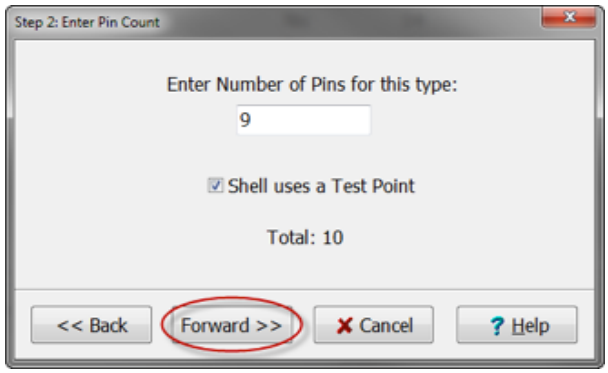
Follow these steps if you selected Create Connector Manually.

1. Enter a name of the. connector you wish to create and click **Forward>>.**

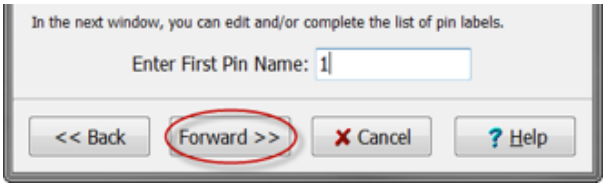


2. Enter the number of pins on your connector.
If needed select **Shell uses a Test Point**. Click **Forward>>**.

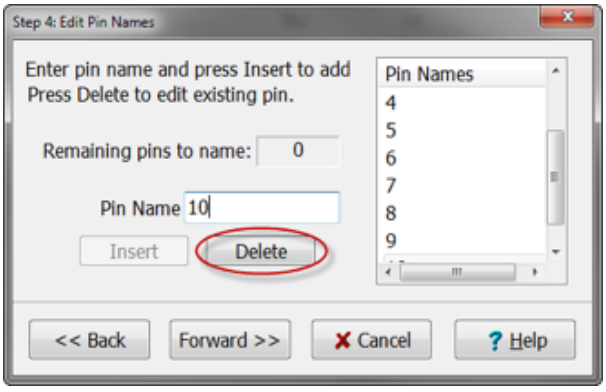




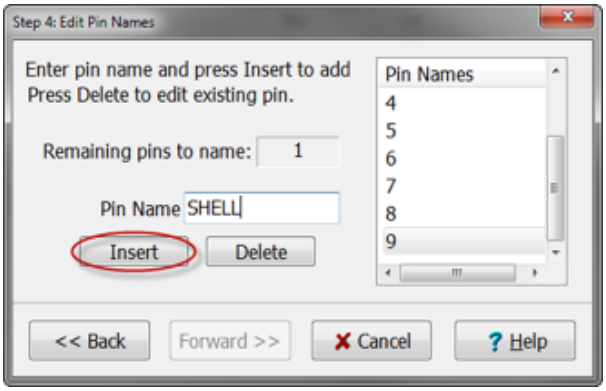
3. To automatically name your pins, type `1` or `A` into the Enter First Pin Name box depending on your type of connector. **Click Forward>>**.



4. If your connector has a shell, you will see an extra pin listed in the Pin Names list. Select the final pin and click **Delete**.

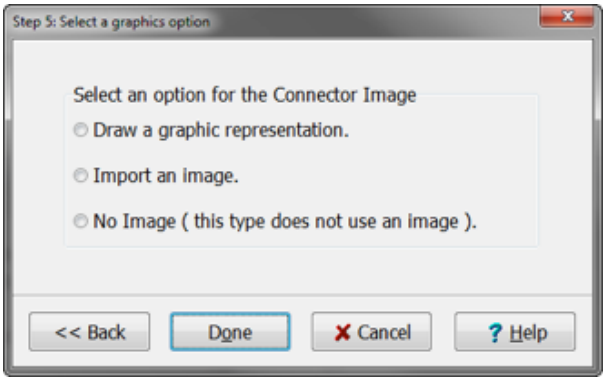


5. Type `shell` in the Pin Name box. Click **Insert**, then **Forward>>**.



6. Select one of the following options to finish registering your connector.

   - Draw an image – *(page 11)*
     - If you do not have a photo of your connector but would still like an image, you can draw a graphic representation.
   - Import an image – *(page 14)*
     - If you have the means, this option is quicker than drawing and can give you a detailed image of your connector.
   - No image – *(page 15)*
     - If you do not need a photo of your connector, this option is the quickest and easiest.



Note: *If you have Pin-Sight software installed, a fourth option will appear in the Select a graphics option window allowing you to import an image from the Pin-Sight graphics library.*

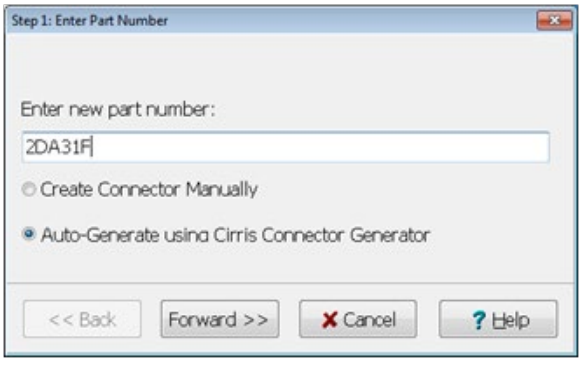
■ *Auto-Generate using Cirris Connector Generator*

Main Menu | Connector Registry | Connectors | Create Connector

The Auto-Generator tool will add connectors to the Connector Registry from the Cirris Connector Generator. Using this tool allows the user to bypass the work of creating a connector, including creating an image of the connector. Before this tool can be used, easy-wire must be upgraded to version 2015.1.0 or later. A list of connectors supported by the auto-generate feature can be found in the appendix on *page 101*.

1. Type the exact mil spec part number of the connector. Select Auto-Generate using Cirris Connector Generator, and click Forward>>.

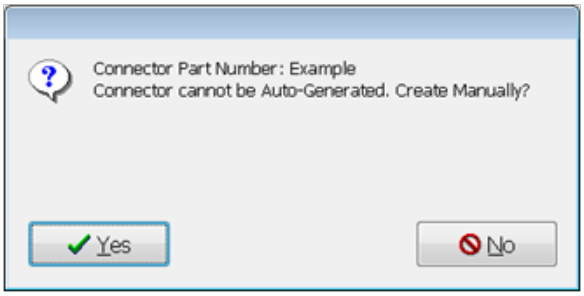
   Note:: *If the connector cannot be generated by the Cirris Connector Generator, you will be given the option to create the connector manually. See page 9 to learn how to create a connector manually.*



2. If the connector can be generated by the Cirris Connector Generator, you will have the option of adding it with or without the shell, or to not add it to the Connector Registry.

   If you choose to add the connector, a window showing the graphic will open. See *page 11* for information on how to edit a connector graphic.

   Add any desired drawing elements to more closely match your specific connector. Click Close/Save to save the connector and return to the Connector Registry.



3. Once a connector is added by the generator, a ~ symbol will appear at the beginning of the new connector to show it was generated by the Cirris Connector Generator. Double click on the connector to see the connector image. The connector is now ready to be added to a test program.

   Note: *The ~ symbol will appear at the beginning of a copied connector to show it originated from the Cirris Connector Generator.*

   If you delete a connector you can re-enter it at a later time.

3.1.2 easy-wire Graphics

Main Menu | Connector Registry | Connectors | Create Connector

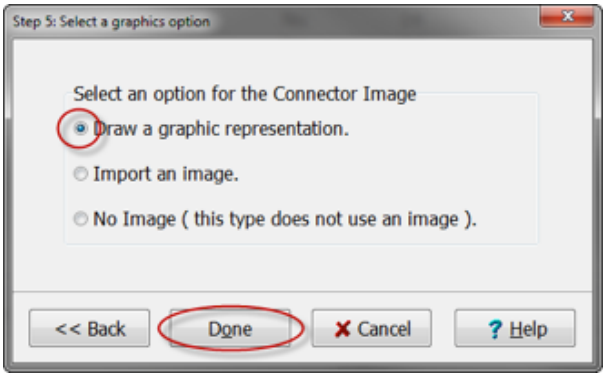
Draw or import an image into the software.

■ *Draw a Connector Image*

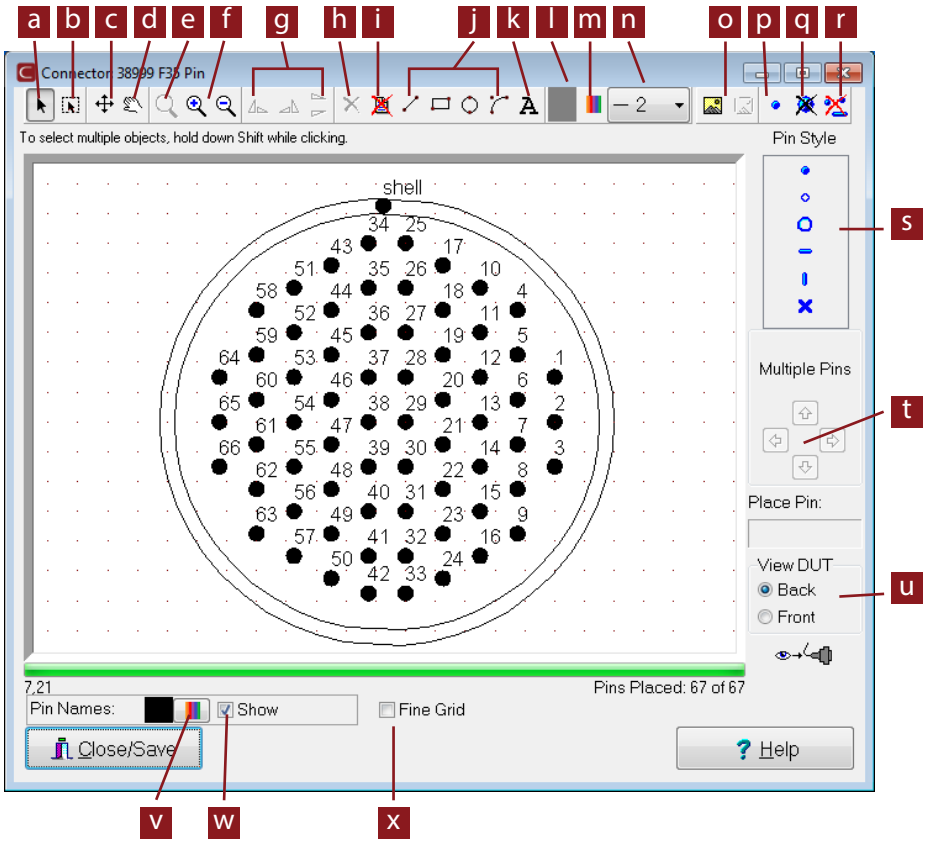
Main Menu | Connector Registry | Connectors | Create Connector | Draw a graphic representation

If you do not have an photo of your connector, easy-wire provides tools for drawing a representation of you connector.

1. Select **Draw a graphic representation** and click **Done**.



2. The following tools are provided to create a graphic representation of your connector. For further instructions on creating a graphic image, see step 3.



a. Select objects on graphic

b. Select multiple objects on graphic

c. Move selected objects on graphic

d. Move everything

e. View entire connector (if zoomed in)

f. Zoom in, zoom out

g. Rotate/flip tools

h. Delete selected item

i. Clear drawing

j. Select to draw adapter shape: click Start and then End Point (for the arc tool, click a start point, end point, and center point)

k. Text tool: click where text will start, click to set text height, then type text

l. Shows current selected color

m. Select a new color

n. Increase or decrease line width

o. Import graphic image/photo

p. Place pin

q. Delete last pin

r. Delete all pins

s. Select a pin style before placing pins

t. Pin autofill tool

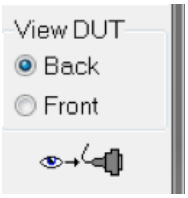
u. Select from which side (front or back) your graphic pins should be portrayed

v. Select to customize the color of your pin name (note: you cannot change the color of the pin itself)

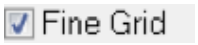
w. Uncheck to hide pin names

x. Allows finer control over where pins can be placed.

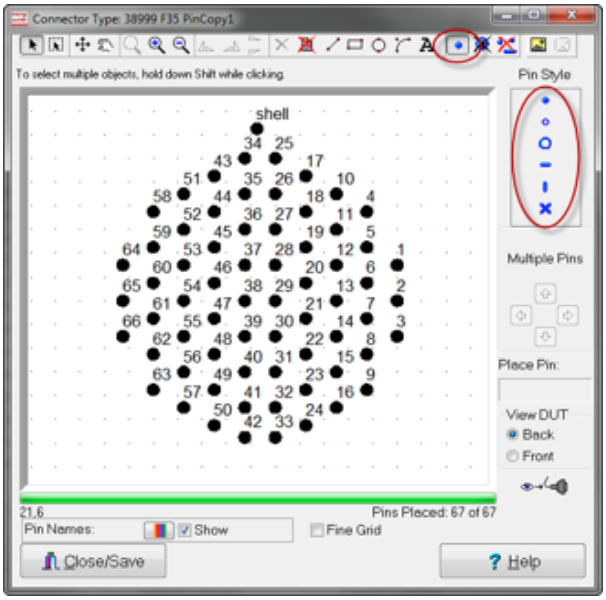
3. Select the appropriate view of your graphic, whether you are viewing the connector from the front or the back. (You can change this later if needed.)



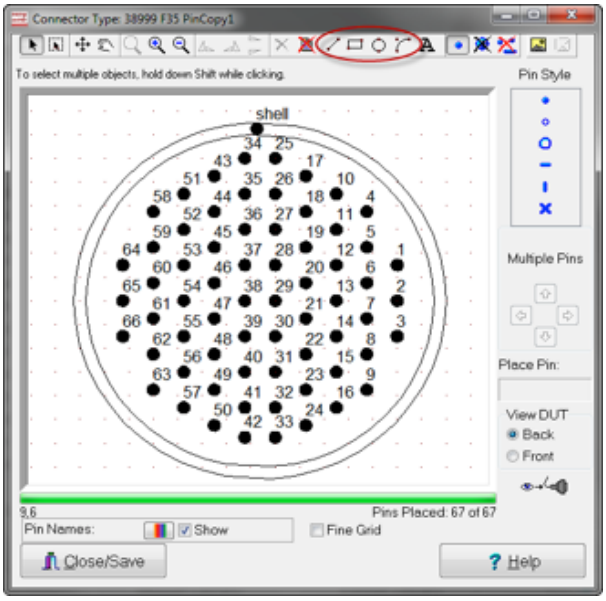
4. If necessary, select the Fine Grid tool. This allows finer control over where you set points on the grid. However, it is more difficult to align the pins with this tool.



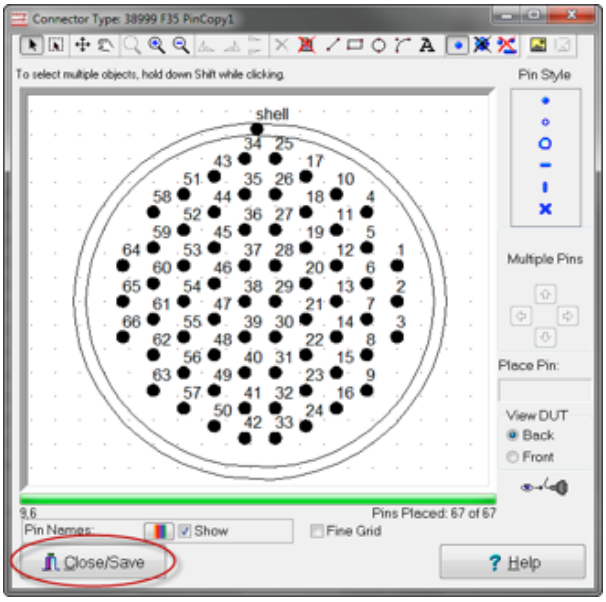
5. Select your Pin Style and click the Place Pin tool. Click on the grid to draw pins for each point as they are arranged on your connector.



6. Click one of the drawing tools and select a line width and color. Draw the shape of your connector around your points.



7. When you are finished, click Close/Save.



8. Click Yes to save changes.

■ *Import a Connector Image*

Main Menu | Connector Registry | Connectors | Create Connector | Import a Connector Image

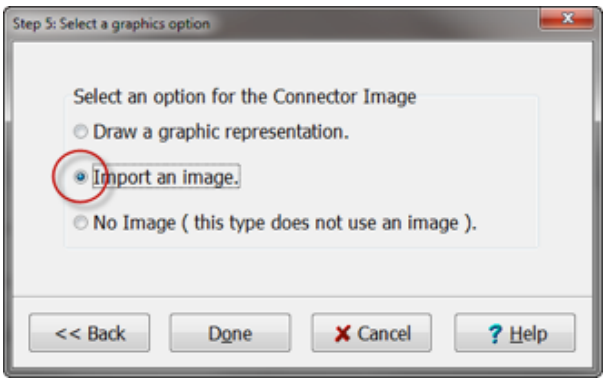
You can use a photograph or scan a drawing of the connector to use as your connector image. Possible file types are:

.bmp .jpg .gif .png

Load the image onto your computer. Click **Help** for more information on taking connector pictures.

> ***Note:*** *High resolution images can fill database memory and slow down test program response time. To increase software speed and save memory, use an editing program to delete irrelevant background, and crop or resize images to an adequate resolution. (Typically an image can be well represented at fewer than 100KB.)*

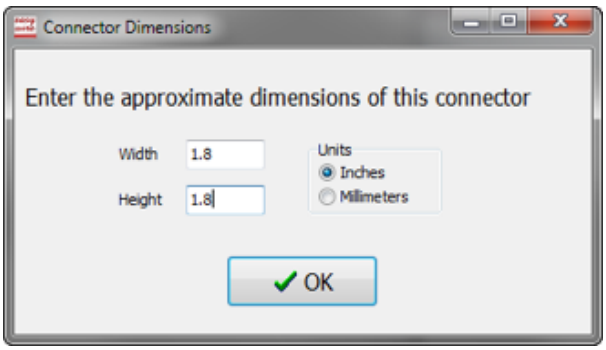
1. In the Select a graphics option window, choose Import an image and click Done.



2. Browse to the location of your connector image. Select the image and press Open.

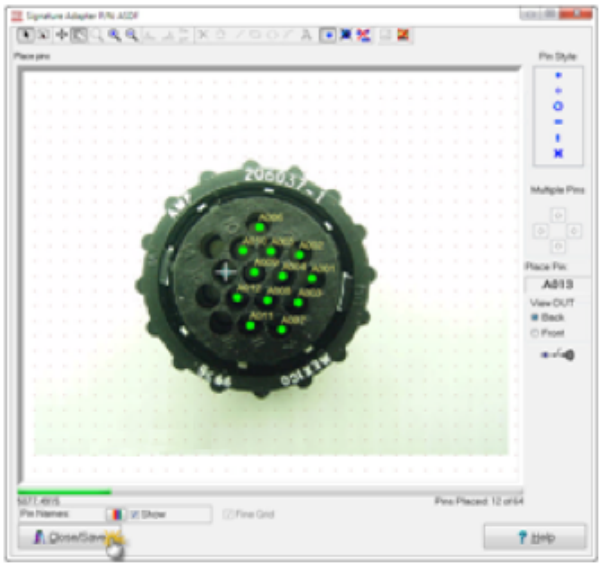
   Note: *If you click Import an image but have no image to import, the Draw a graphic representation window will appear instead.*

3. Enter your desired dimensions for the connector image.



   Note: *Your dimensions should be roughly the dimensions of the connector. Denoting the dimensions of the connector does not impact the size of the image when it is imported. Rather, it determines the relative pin size in the image editor. Smaller connector dimensions will cause the pins to be drawn larger, and larger connector dimensions will cause the pins to be drawn smaller.*

4. Once the image has been imported, place the pins by selecting the Pin Style and clicking on the image at each pin's location. Click Close/Save when you are done.



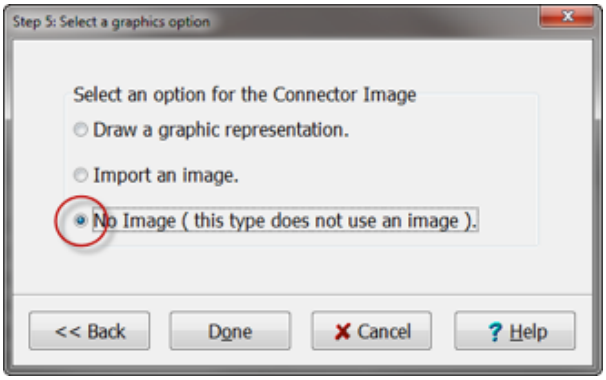
   Note: *When using an image, the drawing tools are not available. Consider using Photoshop or similar software if the image needs modifications.*

   Note: *You may want to change the color of your pin names for greater contrast with the connector image. To change the color of your* **pin names** *click the Pin Names color box and select the color of your choice from the color palette.*

■ *No Connector Image*

Main Menu | Connector Registry | Connectors | Create Connector | No Connector Image

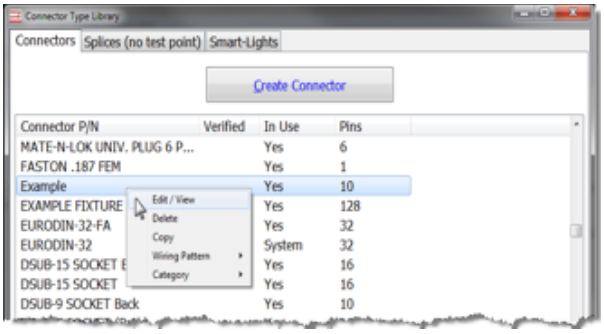
If you decide not to use a graphic, you WILL NOT be able to create one later.



■ *Edit a Connector Image*

Main Menu | Connector Registry | Connectors

To access the connector graphic later, double-click the connector or right click and select Edit.

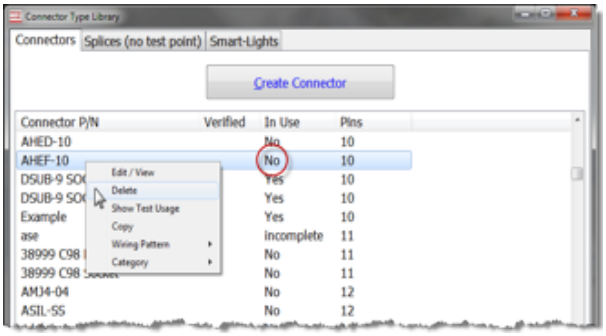


■ *Delete a Connector*

Main Menu | Connector Registry | Connectors

In the Connectors tab, right click on the connector and select Delete.

> ***Note:*** *If a connector is In Use it must be removed from all test programs where it is used before it can be deleted. If you try to delete the connector, a window will appear listing the tests where the connector is being used.*



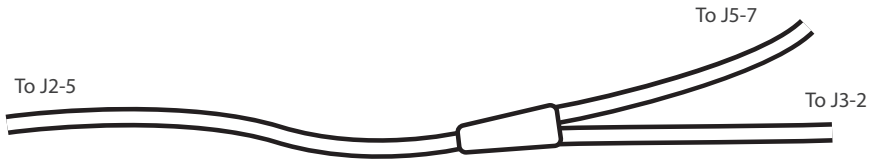
> ***Warning!*** *There is no undo function if you delete a connector. However, you can restore the database if the connector was in the last backup. Also, if you have periodically exported connectors to text files, you can reimport them (page 89).*

3.2 Splices

Main Menu | Connector Registry | Splices (no test point)

Splices are wire junctions in cable and wire harnesses. They do not have connectors and cannot be wired to test points. Cirris easy-wire software will test a wire to a splice by using the test points of other wires to the splice. A splice point must have at least two connections or it cannot be tested.

The process of creating splices in easy-wire is very similar to that of registering connectors. To create a splice, follow steps 1-6 of the **Create a New Connector** section (*page 8*), until you see the **Use Splice Groups** window.



Example of a splice

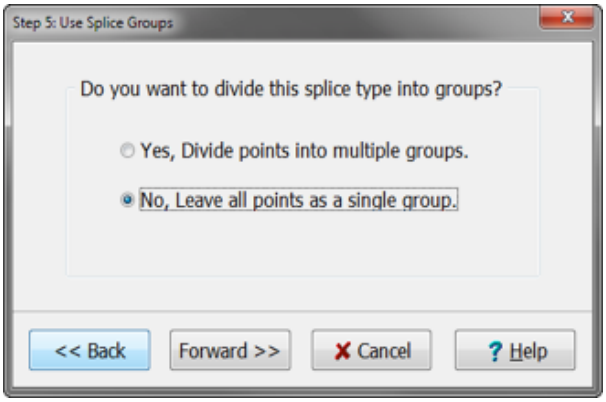
3.2.1 Create a New Splice

Main Menu | Connector Registry | Splices (no test point)

1. The first six steps used to create a connector are the same as those used to create a splice. Follow steps 1-6 of Create a New Connector *(page 8)* until you reach the Use Splice Groups window.

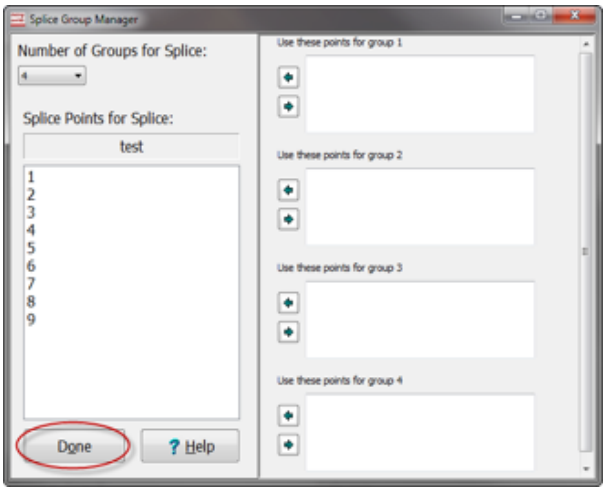
2. In the Use Splice Groups window, you will be asked how you want to divide the splice. All of the pins in a single splice group are considered electrically connected, and the groups are considered electrically isolated from each other.

   - Yes, divide points into multiple groups – Select this option if you have a device with more than one group of contacts or if you want to divide the splice into groups. This option will later allow you to tell the software exactly how each wire should connect.
   - No, leave all points as a single group – Select this option if you have one splice point or if your splices are not grouped together.



3. Select your graphic option (see *page 11* for more information on drawing, importing, or not using an image).

4. If you selected Yes, Divide points into multiple groups in the Use Splice Groups window, you will see the Splice Group Manager window. In this window, you can specify the number of groups and which group each pin should be placed. Click Done when finished.



3.3 easy-wire Adapters

Cirris easy-wire Adapters are used with a CR tester to provide wired mating connectors for your harness connectors. These connectors can be snapped in and used on one harness or test board, then later removed and used on another.

For information on easy-wire Adapters, see *page 67*.

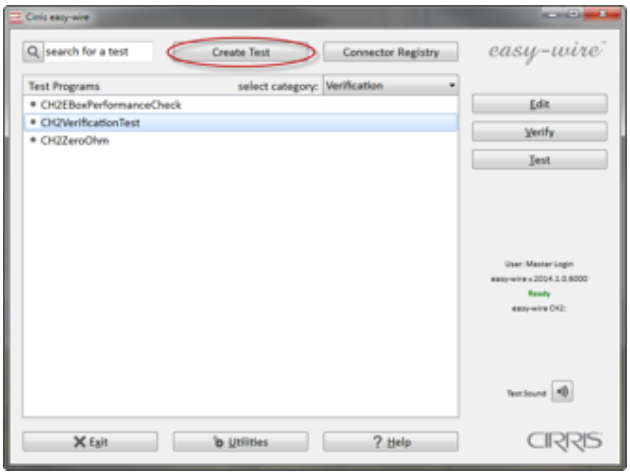
3.4 Smart-Lights

The Smart-Lights tab allows the software to scan the test setup for Smart-Lights.
For information on using Smart-Lights, see *page 63*.

4. Create Test

Set up tests by selecting connectors, voltages, and other test parameters.

Important Terms in this Section



Dielectric Withstand (DW) – A high voltage test used to determine that a wire's insulation can withstand a required voltage for a required time. Used to detect large current flows.

First Article Verification – A feature in easy-wire that requires a supervisor or other authorized user to verify a test before it can pass and be used for production.

Hipot – Short for high potential (high voltage). In easy-wire, this term is used to mean the collection of high voltage tests (DW, IR, etc).

Insulation Resistance (IR) – An HV test used to determine if a wire's insulation resistance meets the specified threshold. Used to detect small current flows.

Learn – A feature in easy-wire that allows the tester to "learn" connections by scanning a known good device rather than having to create test instructions manually. The tester will analyze an attached device and create a test program with instructions for the interconnections that were found.

Nets – A group of interconnected points in a cable or harness.

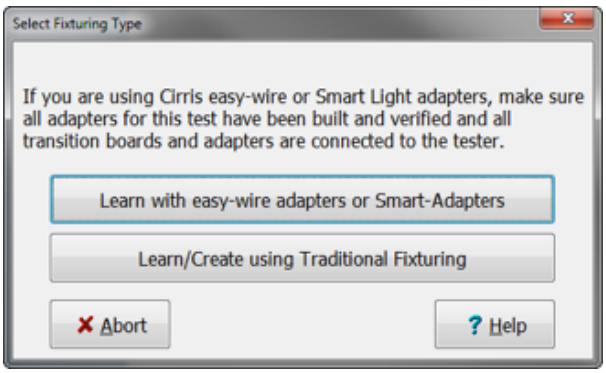
Scripting – An optional feature which allows for customized LUA scripts to be executed during a test in order to perform operations not normally available in easy-wire.

Smart-Adapters – A method used to automatically identify wires and connectors for use in a program. Speeds test setup by using Smart-Lights on each fixture.

Tare Values – Eliminates reported fixturing resistance, or the resistance that could be removed to meet a specification for maximum resistance in the DUT. The resistance value is subtracted from the wire instruction measurement to compensate for the resistance of the interfacing wires and connectors from the front of the tester to the DUT. The subtraction is user defined.

Traditional Fixturing – A method used to manually identify the wires and connectors that connect the device-under-test as opposed to Smart-Adapters.

In the **Select Fixturing Type** window you can choose to create a test program using easy-wire adapters (*page 67*) or **Smart-Adapters** (*page 63*), or using Traditional Fixturing. If you do not have easy-wire adapters or Smart-Adapters, choose the second option, **Learn/Create using Traditional Fixturing**.

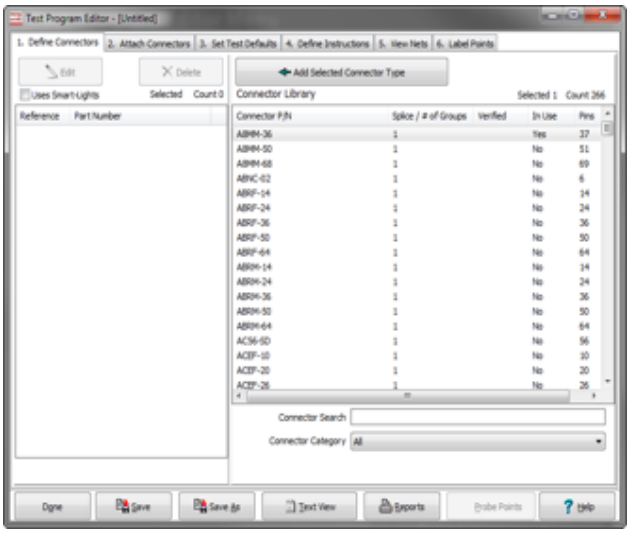


4.1 Test Program Editor Window

Main Menu | Create Test

Clicking **Create Test** brings up the **Test Program Editor** window. The **Test Program Editor** describes the wiring, test parameters, and connectors used to test the device.

The tabs in the **Test Program Editor** window follow the flow of test creation.



4.2 Tab 1: Define Connectors

Main Menu | Create Test | Define Connectors

Defining connectors is the first task in creating a Test Program using traditional fixturing.

In the **Define Connectors** tab of the **Test Program Editor**, select all the connector and splice types that will be used by your device-under-test (DUT).

Edit – The edit button allows you to change the name of the point (or point label) and identify points used in 4-wire testing. (For more information on 4-wire testing, see the Help System or visit www.cirris.com and search for 4-wire.) Further instruction on labeling points can be found on *page 20*.

Delete – Removes a connectorfrom the selected connectors list.

4.2.1 Add Connectors to Test

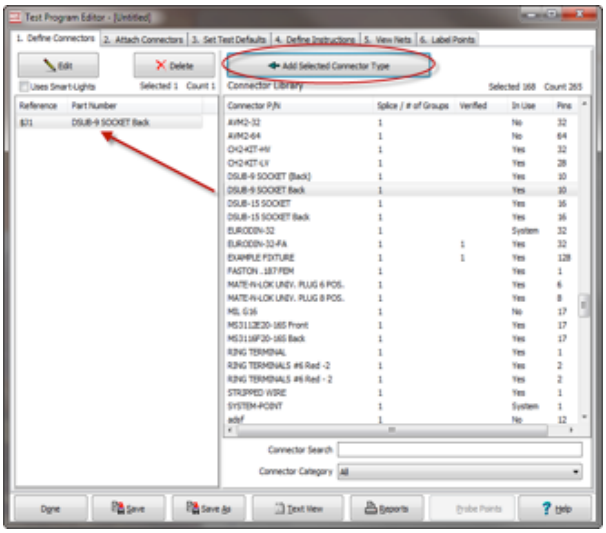
Main Menu | Create Test | Define Connectors

In the **Test Program Editor** window, select the connector(s) to use in the test from the list on the right. Click **Add Selected Connector** Type.

To see the connector graphic (if one was created), double-click on the connector in the **Connector Library** list. The graphic will be displayed as seen in the graphic editor.

If a connector is not in the **Connector Library** list, you will need to exit the **Test Program Editor** and add those connectors to the **Connector Registry** *(page 8)*.

Or if the connector is supported by the Cirris Connector Generator,



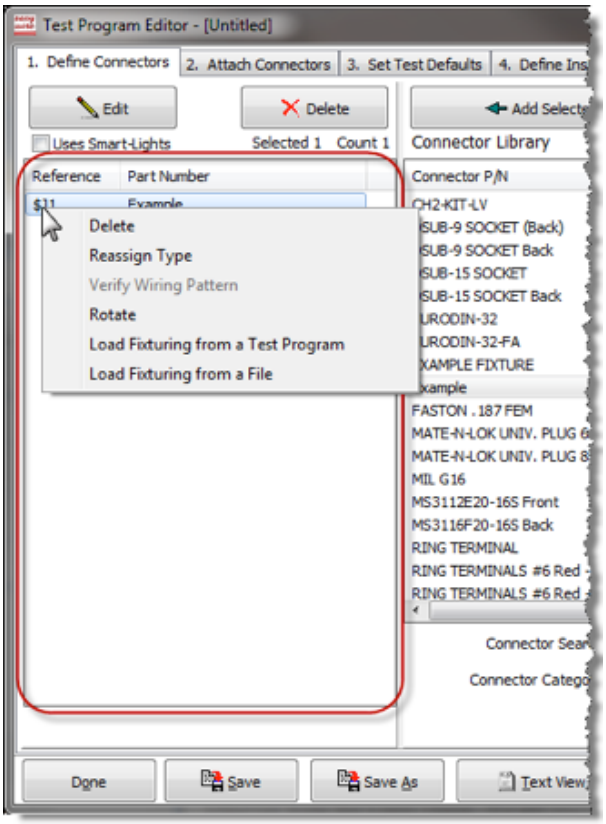
type the name into the search bar and press Enter or F4. You will be able to auto-generate the connector without returning to the connector registry. For more information on the Cirris Connector Registry, see *page 10*.

Note: If you are using Smart-Lights, see page 63 for further information.

■ *Define Connectors – Right Click Options*

Main Menu | Create Test | Define Connectors

- **Delete:** Remove a connector from the test program.
- **Reassign Type:** Replace the connector with one that has the same pin count and pin names.
- **Verify Wiring Pattern:** The selected connector must have had its wiring pattern set for this option to be available (see *page 31*). Verify the wiring order by probing each pin on an actual connector. This is not the same as attaching the connector.
- **Rotate:** Rotate the graphic to allow the test operator to see the graphic view in the same orientation as they do on the test board. A rotated graphic view will only affect the selected connector in the test program, not the entire database.
- **Load Fixturing from a Test Program:** This allows you to choose an already setup test program and copy the connectors from that test program. This option is always available; however, the list must be empty to use it.
- **Load Fixturing from a File:** Load a test program from outside the database. This option is always available; however, the list must be empty to use it.



4.3 Tab 2: Attach Connectors

Main Menu | Create Test | Attach Connectors

After adding connectors on tab 1, click tab 2 to attach the connectors.

4.3.1 Attach Connectors with Probe

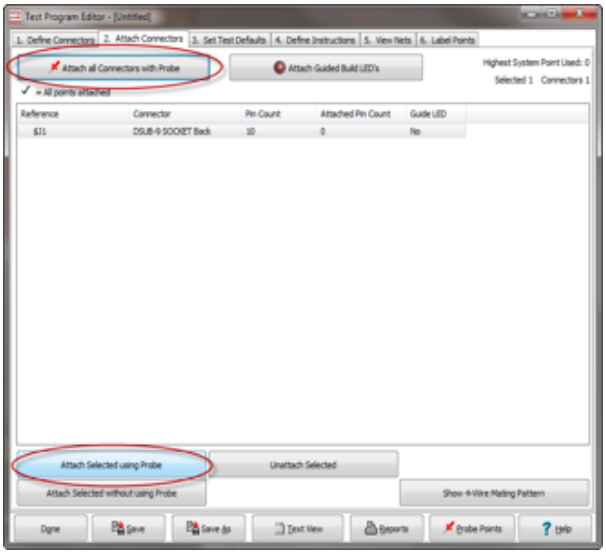
Main Menu | Create Test | Attach Connectors

1. Your selected connector(s) will appear in the window. You may either attach connectors by clicking Attach all Connectors with Probe, or select a single connector from the list and click Attach Selected Using Probe.

Attach All Connectors with Probe: This option will sequence through all connectors in the list.

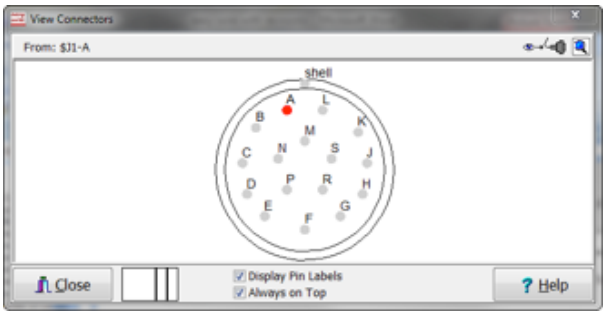
Attach Selected Using Probe: This option lets you attach connectors one at a time. The next connector must be selected in order to probe it.

Note: *To attach connectors without a probe, see page 23.*

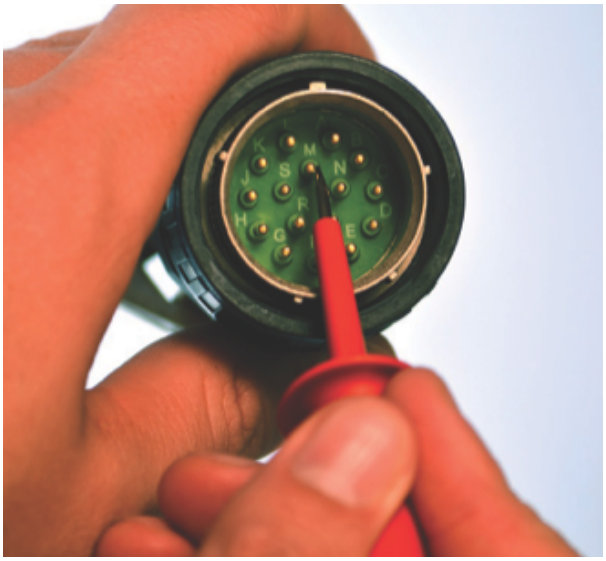


2. After you have chosen a method to attach the connectors, click OK in the instruction window.

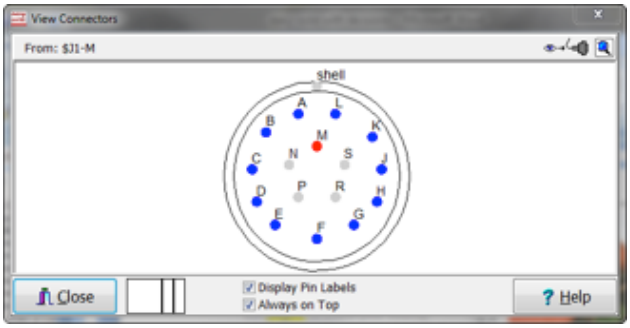
3. If you created a graphic image in the Connector Registry *(page 11)*, a window containing the image will appear.



4. The dot representing the first point will be highlighted red. Touch your probe to the corresponding pin on your actual connector to hear a tone. The tone indicates the pin is attached. (If you do not hear a tone, see *page 94* to check your volume).



5. The dot representing the first point will turn blue. The dot representing the next point is now red, prompting you to touch your probe to the pin. Continue probing each pin in this manner.



6. If you have a graphic with all blue points it means they are attached. The window showing your connector graphic will then close automatically. Notice there is now a check mark next to your connector, verifying that the software recognizes that the connector is attached.

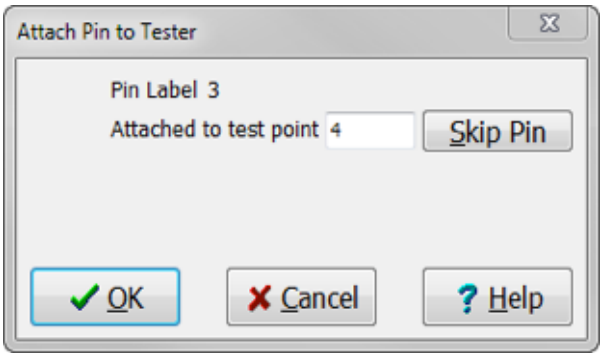
4.3.2 Attach Connectors without Probe

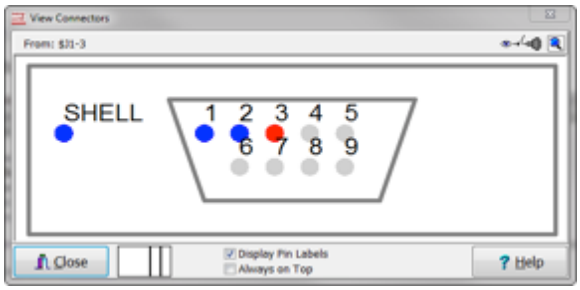
Main Menu | Create Test | Attach Connectors

If you know how your fixture's connectors are wired back to the tester's system points, you can use Attach Connectors without using Probe to enter the system points.

1. Select a connector from the list and click Attach Selected without using Probe.

2. To attach a pin, enter the number of the tester's point that connects to the highlighted pin, then click OK. If you do not want to attach a pin, click Skip Pin. As each pin is attached, the corresponding pin on the graphic turns blue.





3. The window will automatically close when all pins are attached or skipped. Notice there is now a check mark next to your connector, verifying that the software recognizes the connector is attached.

Note: *If you have Verified the wiring pattern for this connector (page 41), you will only need to probe the first pin and the software will automatically assign the rest of the pins.*

4.4 Tab 3: Set Test Defaults

Main Menu | Create Test | Set Test Defaults

Once connectors are attached, click tab 3 to set test parameters. Select test parameters, test conditions, and other settings.

Note: *If this step is skipped, the system defaults will be used.*

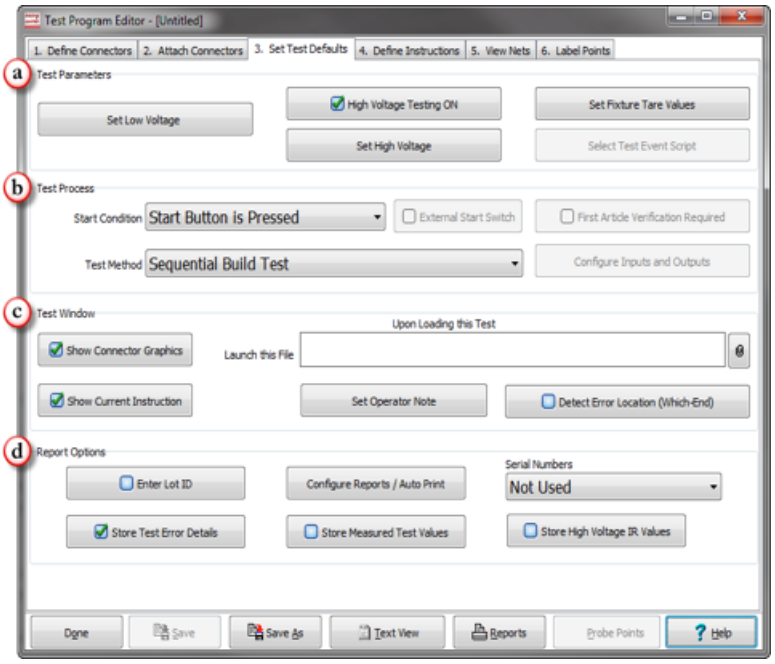
The Set Test Defaults tab is divided into four categories:

a. **Test Parameters** – *page 24*

b. **Test Process** – *page 27*

c. **Test Window** – *page 28*

d. **Report Options** – *page 28*



4.4.1 Test Parameters options

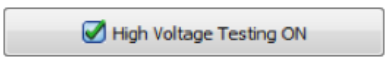
Main Menu | Create Test | Set Test Defaults

Test Parameters options allow you to determine the test program parameters.

Set Low Voltage: Allows you to change the LV insulation resistance and default wire resistance. *(page 25)*

High Voltage Testing ON: Turns on high voltage testing and makes High Voltage settings visible.

A check in the box indicates that high voltage testing is ON.



Set High Voltage: Allows you to change with HV test parameters such as voltages and dwell and ramp times. *(page 25)*

Set Fixture Tare Values: Allows you to set a resistance tare value before testing the device. This subtracts the resistance of the fixture from your results.

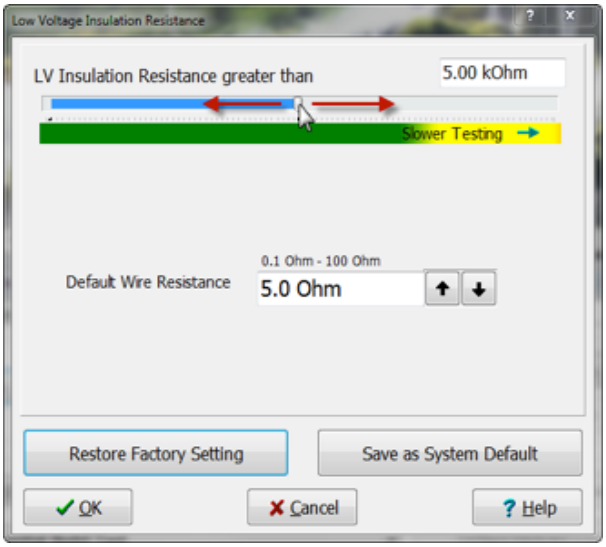
Select Test Event Script: Select test event scripts with an .evt or .lua. file extension. This is an optional feature.

> ***Note:*** *Scripting allows you to combine custom test processes with the tester's standard capability to maximize flexibility and speed. For more information on scripts, visit www.cirris.com and search for scripting.*

■ *Set Low Voltage*

Main Menu | Create Test | Set Test Defaults | Set Low Voltage

A low voltage test will always be performed before a high voltage test. For more information on Low Voltage testing, visit www.cirris.com/learning-center.



LV Insulation Resistance greater than: This will set the Low Voltage insulation resistance for the test. Connections above this resistance will be ignored. Resistances detected below this setting will be seen as connections (shorts if unintended.)

Drag the slider until you reach the desired setting. Click to the left or right of the slider to reach a more precise value. Click OK when finished.

Default Wire Resisitance: Defines the maximum allowable resistance of a good connection.

Save as System Default: Clicking this button saves LV insulation Resistance and Default Wire Resistance to the values set in this window.

Restore Factory Setting: Clicking this button resets LV Insulation Resistance to 5.00 kOhms and Default Wire Resistance to 5.0 Ohms.

■ *Set High Voltage (CH2 Only)*

Main Menu | Create Test | Set Test Defaults | Set High Voltage

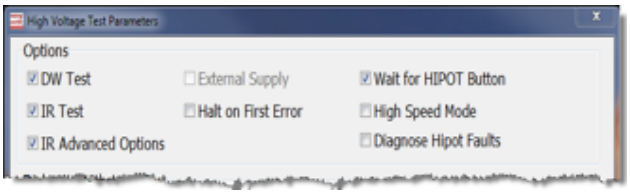
High voltage, or "**hipot**" testing is used to expose a variety of potential problems. For more information on the benefits of hipot testing, visit www.cirris.com and search for high voltage.

When the **High Voltage Testing ON** option is selected, the **Set High Voltage** button will be active. Click **Set High Voltage** to open the **High Voltage Test Parameters** window.

In this window, you can manipulate the settings for two common high voltage tests: the **Dielectric Withstand Test** and the **Insulation Resistance Test**.

When both tests are selected the DW Test is performed first, followed by the IR Test.

HV Options



- **DW Test:** DW test will be performed. *(page 26)*
- **IR Test:** IR test will be performed. *(page 27)*
- **IR Advanced Options:** Activates the Soak Time, Max Soak, and Test Time settings. For more information, see the Help System.
- **External Supply:** Only available when a Cirris CH2 xHV Power Supply is connected to a CH2 tester. See the Help System for more information.

Note: *A Cirris CH2 xHV Power Supply increases the voltage and capabilities of your CH2. For more information, visit our CH2 page on www.cirris.com.*

- **Halt on First Error**
  - If Selected: Stops testing after the first HV error is detected.
  - If NOT Selected (default): HV test is completed for all test points regardless of how many errors are encountered.
- **Wait for HIPOT Button**
  - If Selected (default): After a successful LV test, the Hipot button will display in the Test window. The button must then be clicked during testing to proceed with hipot. This is an extra safety feature used to warn operators when hipot testing begins.
  - If NOT Selected: HV testing will automatically follow the LV test.
- **High Speed Mode**
  - If Selected: HV test applies voltage to multiple nets simultaneously while still ensuring that each net is tested against every other net, thus speeding up the test process. If an error is found, each net is tested individually to locate the exact net that has the error.
  - If NOT Selected (default): the HV test is applied to each net one at a time while all other nets are pulled to ground.

WARNING! *The High Speed Mode should NOT be used with highly capacitive devices. High capacitive nets may cause over current failures, meaning the nets will need to be tested individually. This could cause the test to slow down significantly. For more information, see Cirris's article, "High Speed Hipot"."*

- **Diagnose Hipot Faults:** The tester will attempt to isolate and report the failed To point/net.

■ *Dielectric Withstand Test*

Main Menu | Create Test | Set Test Defaults | Set High Voltage

In a dielectric withstand test (DW test), a voltage much higher than the normal operating voltage is applied between points on the device-under-test. This ensures the insulation can withstand a higher amount of voltage (such as a surge) without failing.

Note: *For more information on DW testing, click Help or visit www.cirris.com.*

Change the settings for the DW test by clicking the arrows next to each field or type the desired setting into the box.

■ *Insulation Resistance Test*

Main Menu | Create Test | Set Test Defaults | Set High Voltage

In an IR Test, a device's overall electrical insulation value is measured to ensure the insulation meets the specified resistance value. For an assembly to pass the IR test, the measured insulation resistance must be better than (i.e. have higher resistance than) the Insulation Resistance setting for the test.

> ***Note:*** *For more information on IR testing, click Help or visit www.cirris.com.*

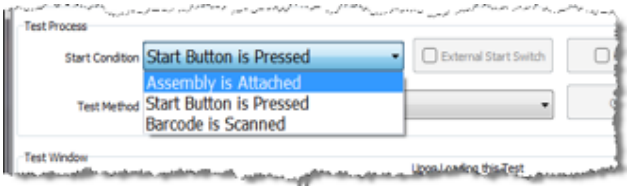
Change the settings for the IR test by clicking the arrows next to each field or type the desired setting into the box.

4.4.2 Test Process options

Main Menu | Create Test | Set Test Defaults

From the Test Program Editor window, these options control the test process such as test methods and start conditions.

Start Condition Options: Select the method that works best for your testing conditions.

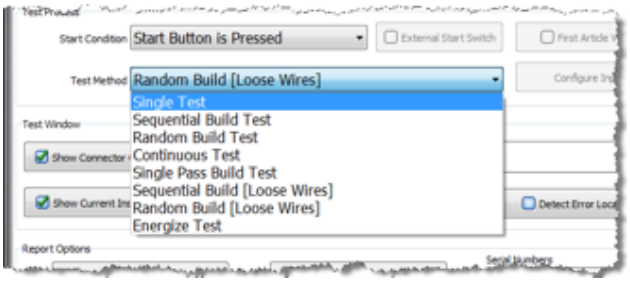


- **Assembly is Attached:** As soon as the tester senses a connection between its test points (i.e. when an operator begins to connect the DUT) the test starts.
- **Start Button is Pressed:** The test starts when the operator clicks Start in the Test window.
- **Barcode is Scanned:** The operator can start a test by scanning a barcode.

External Start Switch: This feature is not implemented.

First Article Verification: Toggles First Article Verification on and off. For more information on this feature, see *page 43*.

Test Method: Contains a variety of testing options that help verify cables as well as guide operators on building.



- **Single Test:** The tester will execute each test instruction one time, regardless of errors. This method is fastest.
- **Sequential Build Test:** Guides an operator to assemble a wire harness in a particular order. The test will halt until an error is resolved or an instruction completed. The test will not finish until all instructions pass.
- **Random Build Test:** Guides an operator to assemble a wire harness but with no set order so that the order can be varied by the operator. The order can be changed by probing the desired points or net. The test will halt until an error is resolved or an instruction completed.
- **Continuous Test:** Similar to a Single Test, but continues repeating until all errors are solved. A Continuous Test allows the operator to move the cable around in an effort to catch intermittent failures such as loose connections.

- **Single Pass Build Test:** Guides an operator to assemble a wire harness, but still tests good even if wires are disconnected after being wired correctly at least once.
- **Sequential Build [Loose Wires]:** Same as a Sequential Build Test, but does not check for shorts until all other instructions pass.
- **Random Build [Loose Wires]:** Same as a Random Build Test, but does not check for shorts until all other instructions pass.
- **Energize Test (CH2 only):** Executes each instruction one at a time using an EBox. This test does not check for shorts or perform hipot.

Note: *The CH2 External Energization Unit (EBox) energizes lamps, LEDs, relays, or other devices in the DUT. For more information, visit www.cirris.com.*

Configure Inputs and Outputs: Allows you to integrate Digital I/O which automates your testing process. With Digital I/O, you can integrate tools such as foot switches, palm buttons, and status lights to your tester. For more information on Digital I/O, click Help or visit www.cirris.com.

4.4.3 Test Window options

Main Menu | Create Test | Set Test Defaults

Settings in this section control what is shown in the Test Window *(page 47)*. There are five options:

Show Connector Graphics: If graphics were created in the Connector Registry *(page 7)*, selecting this option will allow them to display in the Test window.

Launch this File Upon Loading this Test: Loads a selected file or program at the beginning of a test session. This file may contain information helpful to the operator such as assembly instructions. For more information, click Help.

Show Current Instruction: Show the instruction of a wire or connection as you are prompted to make the connection during the test.

Set Operator note: Create a note for the test operator to read in the Test window *(page 51)*.

Detect Error Location (Which-End): Test error information will include which end of the cable a failure is likely located.

Note: *Detect Error Location has two main limitations:*

1. *It can significantly decrease test speed.*
2. *It is not effective on small devices where fixturing resistance or capacitance is close to or higher than that of the device-under-test.*

4.4.4 Report Options

Main Menu | Create Test | Set Test Defaults

These settings control information pertaining to Test Reports.

Enter Lot ID: Allows you to save a unique ID for each group (batch) of cables.

Store Test Error Details: Allows you to store error information to the database for each device tested. This also controls whether errors will show on reports for the corresponding test program.

Configure Reports/Auto Print: Allows customization of reports. You may also turn on or off auto print and auto export.

Store Measured Test Values: Store the measured values (number of cables tested, number of good cables tested, and number of bad cables tested) of the instructions for each device tested. (Stores measurements for expected, not unexpected, connections.) This feature impoacts test time but can be shown on reports.

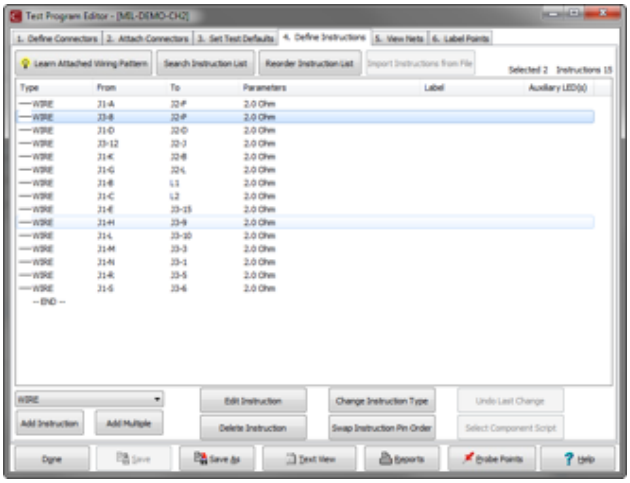
Serial Numbers options: Serial numbers can be used in Test Reports and in cable or harness labels. You may choose how serial numbers are entered for a given test program. For more information on Serial Numbers, see the Help System.

Store High Voltage IR Values: Store the measured insulation resistance for every tested net. The stored IR values can then be viewed and printed in reports.

4.5 Tab 4: Define Instructions

Main Menu | Create Test | Define Instructions

After setting the test defaults in Tab 3, click on Tab 4 to create, add, or modify test instructions.



4.5.1 Instruction Options

Main Menu | Create Test | Define Instructions

Learn Attached Wiring Pattern: see *page 31*.

***Search Instruction List:** Find instructions and test points.

Reorder Instruction List: Testing is done in the same order as the Test Instruction List. Reordering is available for you change the order in which connections and components are tested.

Import Instructions from File: Allows you to import previously exported text files. (For more information on import/export, see the Help System.)

Add Instruction: Add a test instruction. Select an instruction from the drop down list and click, Add Instruction. In the instruction editor window, fill in each field required for the instruction. Click OK when finished. The instruction will appear in the Instructions list.

- **4Resistor:** 4-Wire resistor measurement
- **4Wire:** 4-Wire wire measurement
- **Actuate:** (CH2 only) Ebox Instruction – to connect/disconnect points
- **Capacitor:** Check capacitor value
- **Close:** Used in conjunction with the "Open" instuction for Switch/Relay testing to prompt/test a close
- **Comment:** Display a comment in instruction list and test window
- **Custom:** (CH2 only) Extended capabilities (some paid features)
- **Delay Resis:** For measuring resistance of inductors
- **Diode:** Check diode voltage
- **Energize:** (CH2 Only) Ebox Instruction – energizes actuated points
- **Fiber Optics:** (CR only)Verify presence of optocoupler of fiber optics
- **Install Pin:** (CR only) Used for first ended pinning of connector
- **Link:** Links points together (non-standard components)LUA Component
- **LUA Component:** Custom component supplied by LUA scripting
- **Open:** Used in conjunction with the "Close" instruction for Switch/Relay testing to prompt/test an open
- **Probe:** Prompt, wait for point to be probed
- **Remove Pin:** (CR only) First ended pinning – remove from staged fixturing
- **Resistor:** Measure resistor value
- **Twisted Pair:** (CH2 only) Check presence of twisted pair
- **Wire:** Check connection between points

Add Multiple: Add multiple test instructions. Select an instruction from the drop down list and click Add Multiple. In the instruction editor window, fill in each field required for your test. Click Ok to add an instruction. The window will not close, allowing you to add more instructions. Click Cancel when finished to close the instruction editor window. All instructions will appear in the Instruction List.

Add Sequence: You can add several instructions at once in a repeating sequence. Select an instruction from the drop down list and click Add Sequence. In the Define Sequence window, enter the increments for the pins on your connector and the number of instructions. Click OK and the instructions will appear in the From / To columns.

***Edit Instruction:** Edit the instruction selected in the Instruction List.

***Change Type:** Change the type of instruction selected from the Instruction List. For example, change a Wire instruction to a Resistor.

Undo Last Change: Reverses the last change you made to the Instruction List.

***Delete:** Deletes the selected instruction from the Instruction List.

***Swap Pin Order:** Swap From and To points of a selected instruction.

Select Component Script: This feature must be enabled by contacting Cirris. It allows you to add or change a .CMP component script. You can then add LUA Components from the Add Instruction/Add Multiple drop down list.

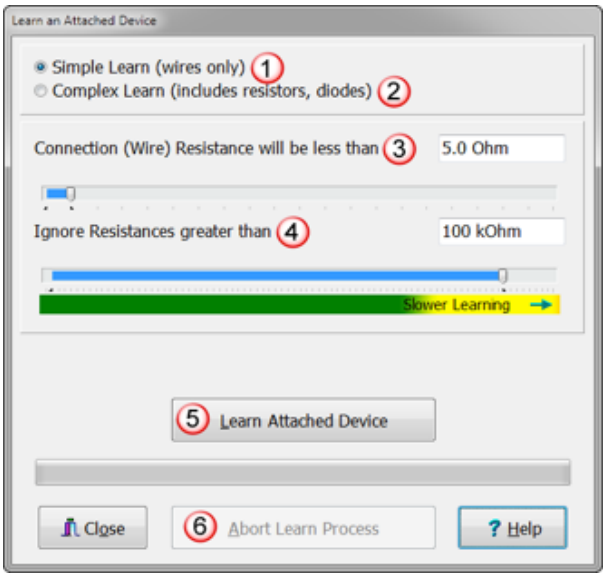
*Also a right-click option

4.5.2 Learn Attached Wiring Pattern

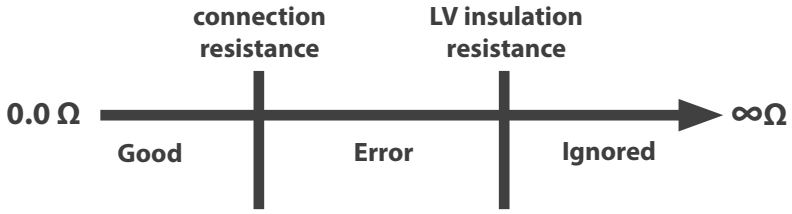
Main Menu | Create Test | Define Instructions

Rather than entering each instruction manually, you can connect your cable and wiring to the tester and perform a Learn. Make sure to use a cable that you know has been built correctly. Click Learn Attached Device to select the settings for the learn. The software will then learn your cable and create a set of test instructions.

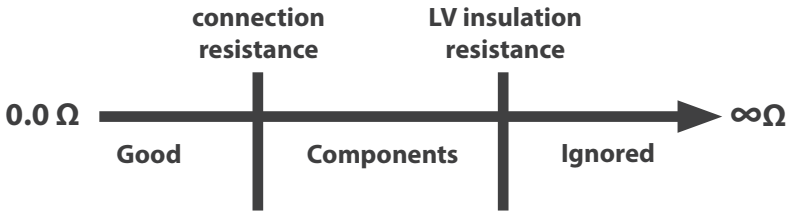
> ***WARNING!*** *Verify the learned instructions after the software has learned the correct cable to ensure the instructions are accurate. Always verify what the tester has learned is correct.*



1. **Simple Learn (wires only):** Resistance detected below the Connection (Wire) Resistance will learn as a wire instruction. Resistance detected above the Insulation Resistance is ignored. Resistance detected between the Connection (Wire) Resistance and the insulation Resistance will cause a High Resistance Learn Error.



Complex Learn (includes resistors, diodes): Resistance detected below the Connection (Wire) Resistance will learn as wire instructions. Resistance detected above the Insulation Resistance is ignored. Resistance detected between the Connection (Wire) Resistance and the Insulation Resistance will learn as component instructions (Resistor, Diode, or Capacitor).

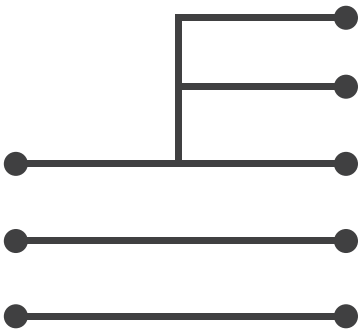


2. **Connection (wire) Resistance will be less than:** Sets the maximum allowable resistance of a good wire connection.
3. **Ignore Resistances greater than:** Connections (intended or unintended) found above this value will be ignored (seen as an open circuit).
4. **Learn Attached Device:** Starts the learn process on the attached device using the selected parameters and enabled options.
5. **Abort Learn Process:** Cancels after starting the learn.

4.6 Tab 5: View Nets

Once all of the instructions are defined/created, you can edit and verify nets in the View Nets tab of the Test Program Editor.

Nets are two or more interconnected points in a cable or harness. The example to the right shows a net with four points and two nets with two points each.

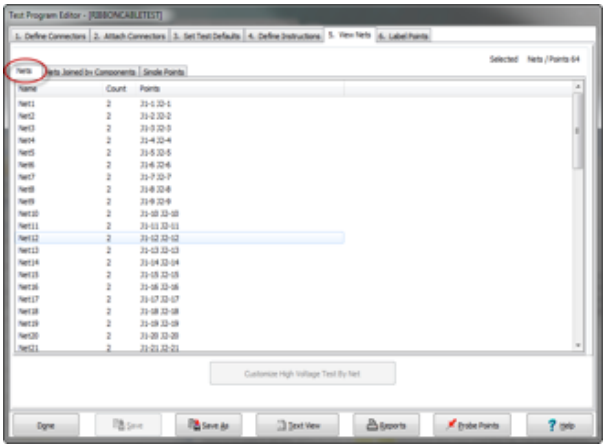


If there are more than two test points in a common connection you can view all interconnections in the View Nets tab as a group of connections or net.

> ***Note:*** *If you add or subtract connections after you have renamed them, they need to be verified again for correctness.*

Nets tab: shows the following information:

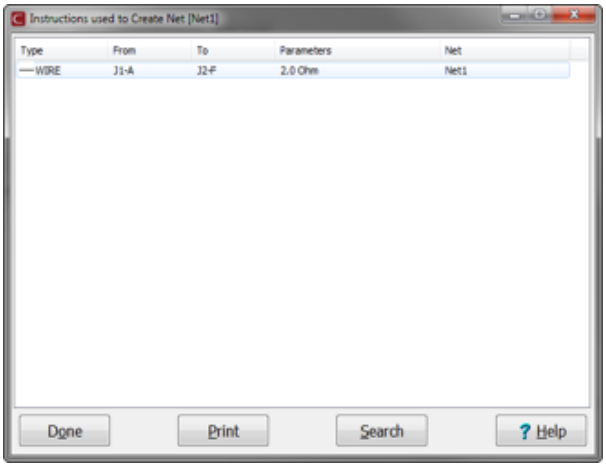
- **Name:** name of the net. The name is auto-generated. Slow-click on the name to change the name.
- **Count:** number of points in each net.
- **Points:** names each point in the net.



> ***Note:*** *If using a CH2, you will see options to control and customize high voltage for each net. For information on using these options, see* *page 34**.*

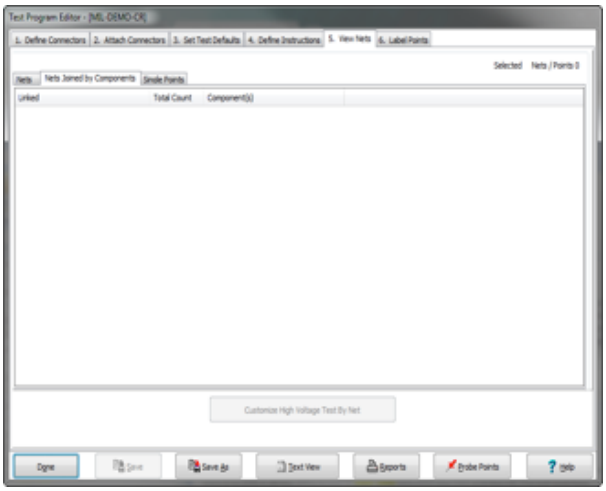
You can view all instructions that make up the net by double-clicking on the net or select the net and click Details. The Instructions used to Create Net window will open.

> ***Note:*** *Each net only contains test points connected with resistances below the "Connections (wire) Resistance". If nets are connected by components, such as a resistor, you can view the connected nets by selecting the Nets Joined by Components Tab.*



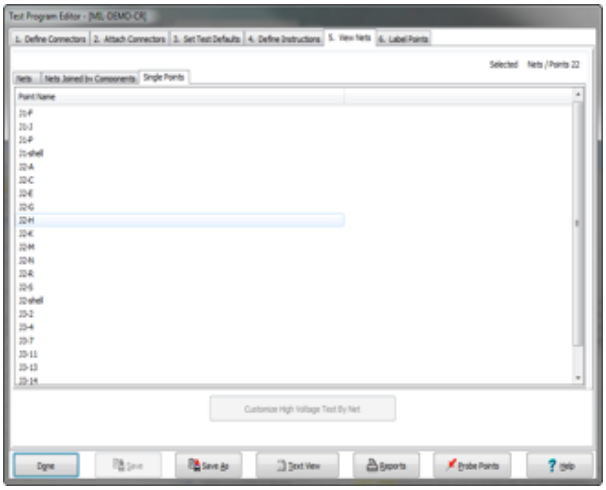
Nets Joined by Components Tab: Selecting the Nets Joined by Components tab shows the list of all the nets/points in the test program that are connected to each other by some sort of component (Resistor, Diode, Capacitor, or link).

> ***Note:*** *Any nets connected by components will be hipot tested as a single group of points. (i.e. voltage will be applied to the entire group of points/nets at once, and components or wires in the group will not have a high voltage applied across them.) For more information, visit www.cirris.com.*



Single Points Tab: Single points are test points that are attached to a connector used in the Test Program, but are not connected to other points or nets with a resistance below the connection (wire) resistance. They may be connected by a component (resistor, diode, capacitor, link).

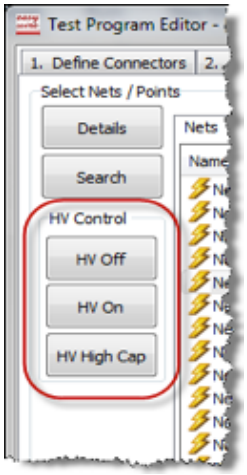
During low voltage these points get tested for any shorts to them. During hipot each point will get voltage applied for the specified duration. You can save hipot test time buy turning off HV on unused points.



4.6.1 HV Control (CH2 only)

Main Menu | Create Test | View Nets

If using a CH2, you can change the High Voltage test on a net by net basis, giving you more flexibility.



HV Off: Turn off high voltage for the selected net(s) and points. They will be held at ground during the hipot test.

HV On: (Default) Turn on high voltage for the selected net(s) and points.

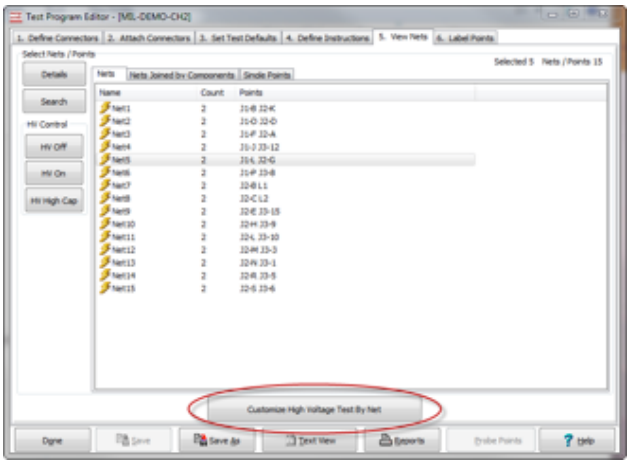
HV High Cap: Change the type of high voltage test to a High Capacitance Hipot test for the selected net(s). Although used normally for high capacitance shields, test points and nets using this feature get tested against earth ground and each other—while floating the other nets.

> ***Note:*** *If you first select a net to be tested with HV High Cap and then select Customize High Voltage Test By Net for the same net, the HV High Cap setting will automatically turn off.*
>
> *Because of the nature of HV High Cap, the setting will not report all of the error types that would be found by a standard hipot test. Thus, HV High Cap should be used with caution and only turned on for nets that cannot be hipot tested with standard hipot settings. For more information, visit the Help System or www.cirris.com.*

4.6.2 Customize High Voltage Test By Net (CH2 Only)

Main Menu | Create Test | View Nets | Customize High Voltage Test By Net

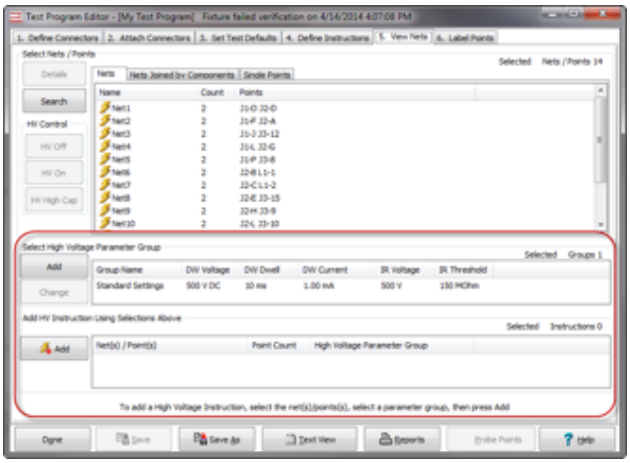
After clicking Customize High Voltage Test By Net, you will be able to add custom hipot settings by net. This allows you to create high voltage settings for single or groups of nets in your test which have different requirements.



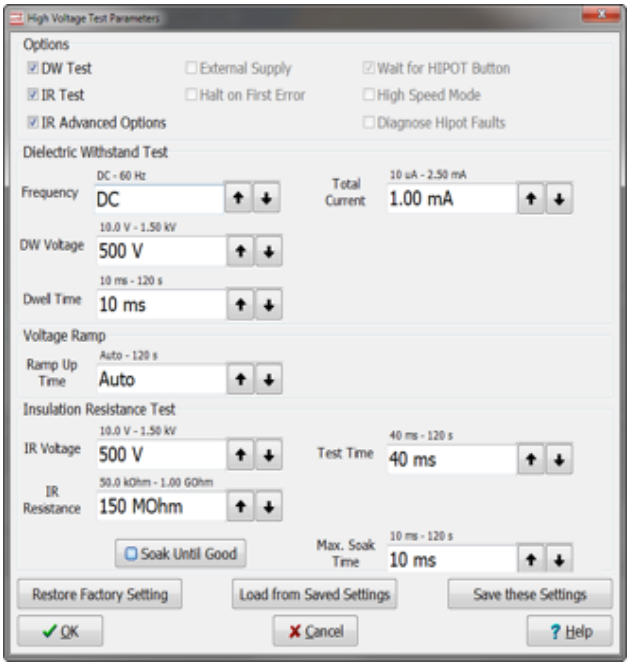
1. In Select High Voltage Parameter Group, click Add to access the High Voltage Test Parameters window.

   The default hipot settings, set in Tab 3, will always be shown as standard settings. New groups will be called parameter group 1, 2, etc…

You can slow-click to rename the parameter group if desired.

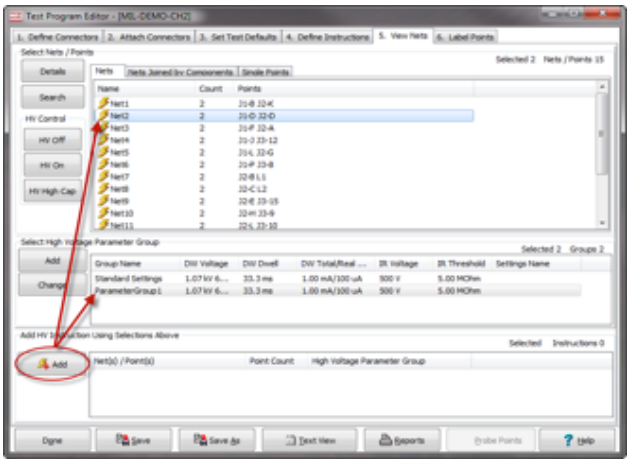


2. Configure the parameters of a new set of high voltage test settings to be used on specific nets. Click OK when finished.

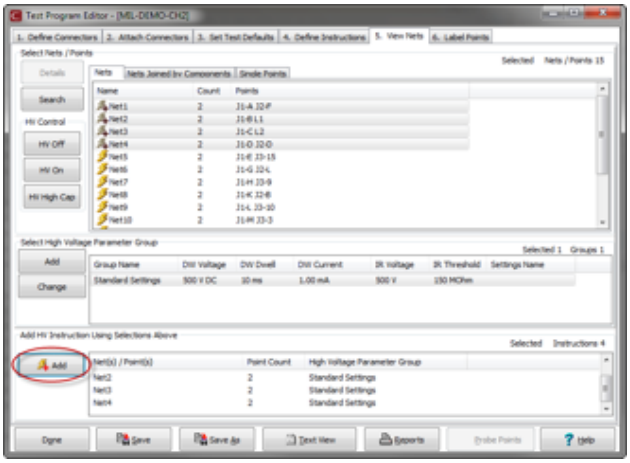


3. Select the alternate Parameter Group you created from Select high Voltage Parameter Group as well as a net(s) from the list of nets (use ctrl + left-click to select multiple instructions).

   The HV parameter group with the most nets to be tested should be the standard group.



4. Click Add in Add HV Instruction using Selections Above. All nets get tested to the standard setting unless added to a custom parameter group.

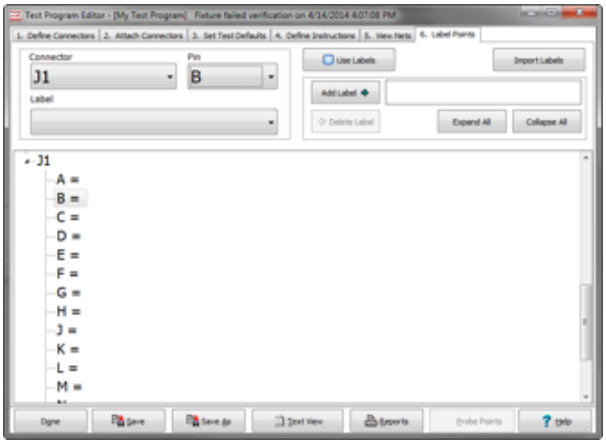


Once a net has been added to a group, the symbol next to it will look like the one to the left, thus confirming that it will be tested using custom HV parameters.

4.7 Tab 6: Label Points

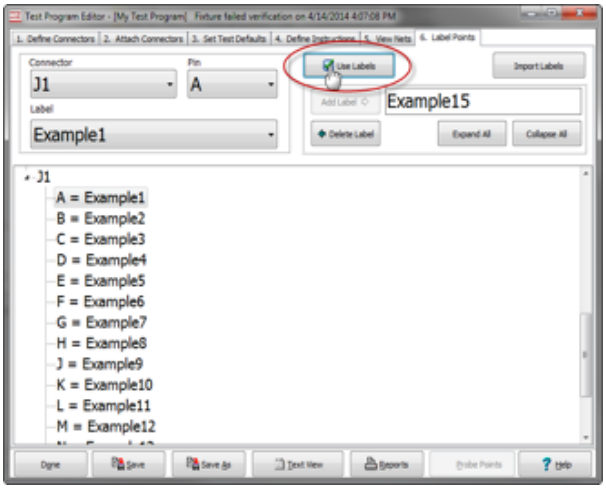
Main Menu | Create Test | Label Points

The Label Points tab allows you to add or delete the pin labels of a connector in the test program. Labeling connector pins allows you to customize how points are referenced in test instructions, errors, and reports.



Connector point labels are user entered text that can be used in place of the standard connector point names. These labels display in reports, in the Test window, and in the Test Program Editor.

Use Labels: To use your labels, instead of the normal connector point names, in the test, click Use Labels (a checkmark means labels are in use).

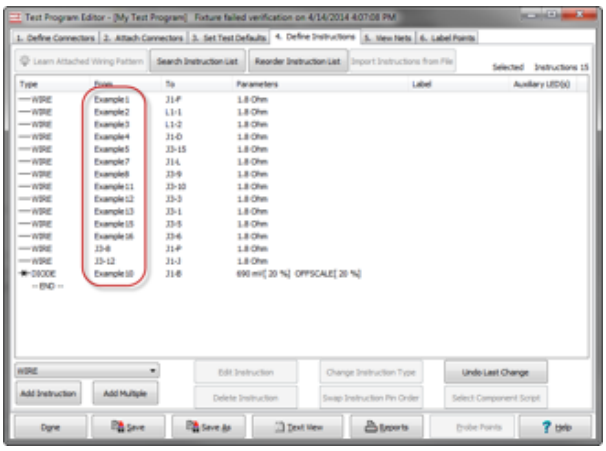


Labels will be displayed in place of letters and numbers on all prompts and reports.

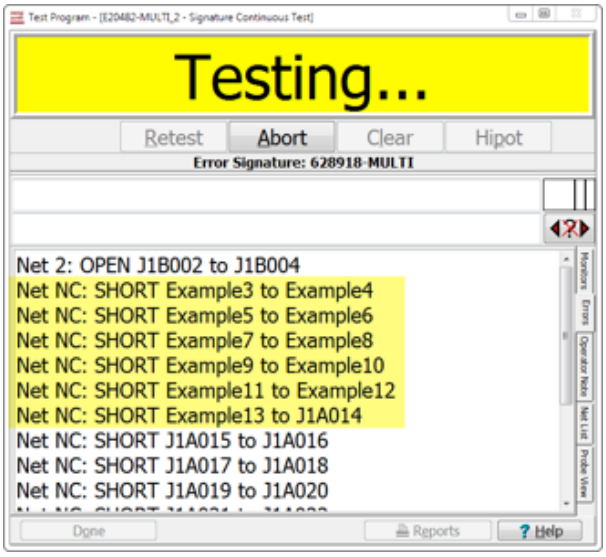
When the Use Labels option is not selected, all pins will be referred to by the original pin name of the adapter selected.

Checking the Use Labels button allows you to:

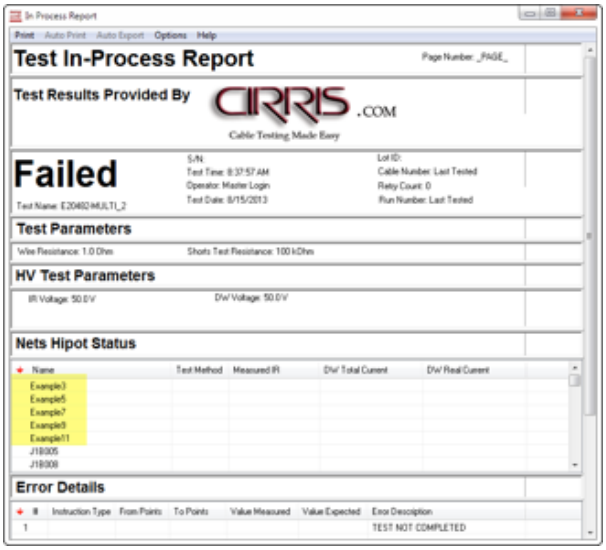
- Better identify your points in the Define Instructions tab of the Test Program Editor.



- See the point labels in the Test window.

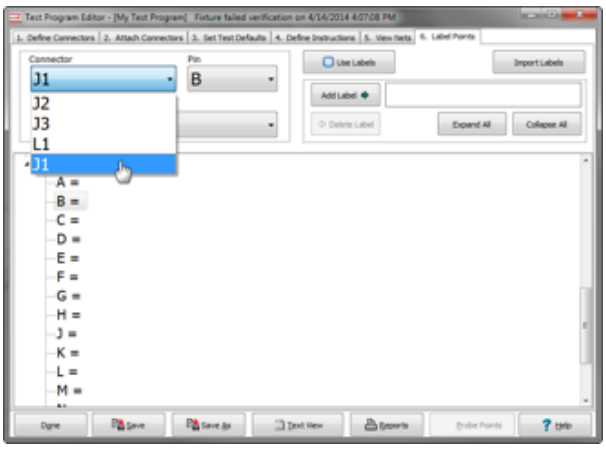


- See the point labels in reports.

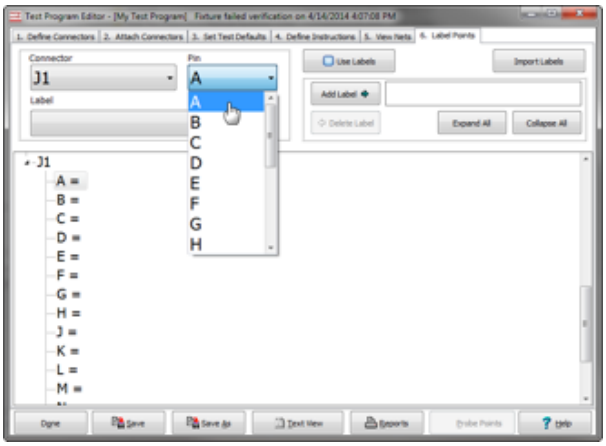


To add a connector point label:

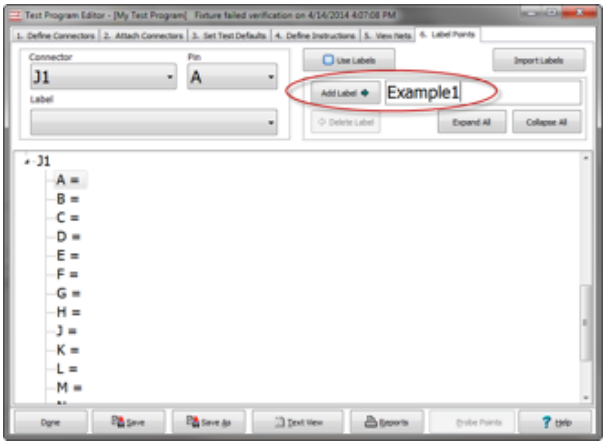
1. Select a connector from the Connector drop down list.



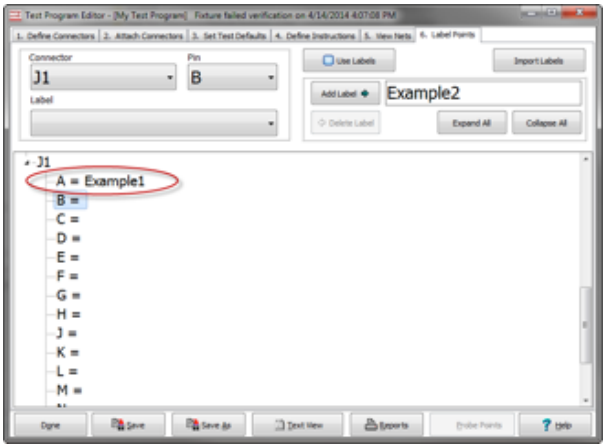
2. Select a pin from the Pin drop down list or select it in the point list by clicking on it.



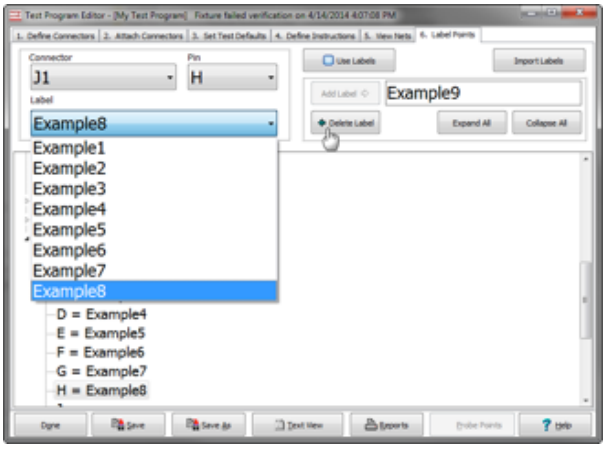
3. Type the label name into the Add Label text box and click Add Label.



4. The label will be added to the list of pins. The predicted name of your next label will then appear in the Add Label text box and the next pin in the list will be selected. You can then click Add Label repeatedly while the predicted pattern matches the label you want for the next pin.



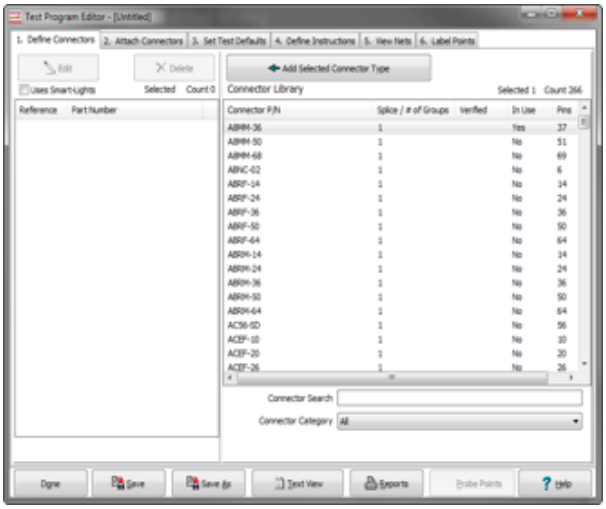
5. To delete a label, select the label in the Label drop down list or in the main window. Then click Delete Label.

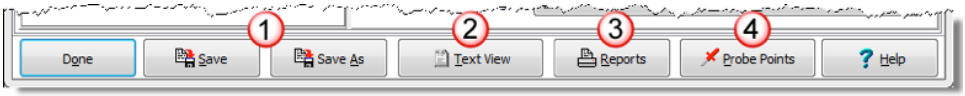


4.8 Test Program Editor Page Menu

Main Menu | Create Test

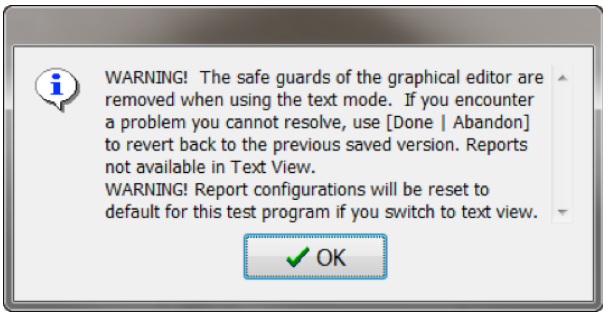
The menu at the bottom of the Test Program Editor window stays the same no matter which tab is selected.





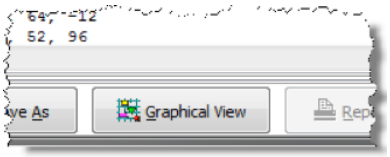
1. **Save/Save As:** Saves a test program to the easy-wire database. The Save button will save changes made to a test program while the Save As button will save an existing test program as a new copy with a new name. To save as a text file, the test program must be exported *(page 88)*.

2. **Text View:** Text view is an advanced function that should not be used without prior easy-wire software knowledge and experience. Please heed the warning that appears when entering Text View.



   Clicking Text View changes the Test Program Editor tabs between graphical view and text view. In text view you can cut, paste, and copy lines of test programs much like any standard text editor. You can also copy data from an Excel spreadsheet or a text document and paste it into the Test Editor window.

   To change back to graphical view, click the Graphical View button in the Test Program Editor Menu.



   WARNING! *When using text view, all normal test program integrity checking that easy-wire performs when in graphical mode is turned off. This makes it possible to enter text data that will prevent the program from committing the changes.*

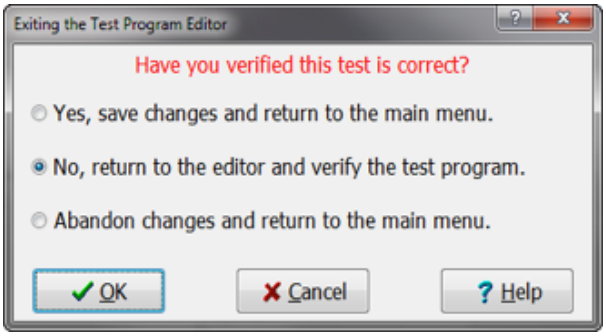
3. **Reports:** Allows you to configure the Test Program Report and Assembly Wiring Report for a program. For more information about reports, see the Help System.

4. **Probe points:** View the point information when you probe a test point or connection. You can also change applicable probe settings for a test program. A tester must be attached to use this option. For more information visit the Help System.

4.8.1 Saving/Abandoning Changes

Main Menu | Create Test

Anytime you click Done in the Test Program Editor window after making changes to a test program, a window will appear to verify your changes.



Save Changes: Choosing the top option, Yes, save changes and return to the main menu, will save all changes made to the test program and return you to the main menu. There is not an easy way to undo changes after saving. Always verify before saving.

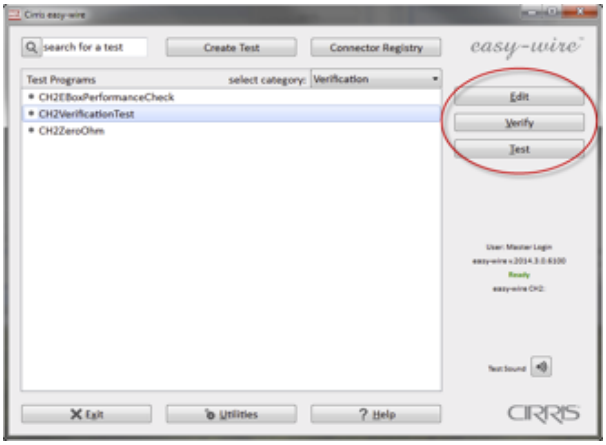
Return to the Editor (Default): Choosing the middle option, No, return to the editor and verify the test program, will allow you to continue making changes to the test program in the Test Program Editor.

Abandon Changes: Choosing the bottom option, Abandon changes and return to the main menu, will cancel any changes made to the test program and return you to the main menu. If you are creating a new test program that has not previously been saved, the test program will be lost.

5. Edit, Verify, Test

After a test has been created, these options become available.

Note: *A test program must be selected to access these options.*



Important Terms

Auxiliary LEDs – When attached to product mating connectors and used in conjunction with the easy-wire software, LEDs provide visual assembly and error queues.

HV Interlock – A safety device that is meant to prevent an operator from accidental shock. An interlock helps protect operators from high voltage during the high voltage test. For more information on interlocks, see the Help System or visit www.cirris.com.

Parent/Child Test – A single parent test program can contain multiple child test programs that run sequentially to handle dynamic changes to connection patterns while testing. Ex. Switches, relays etc. Multiple test programs can be combined together in a Parent Test.

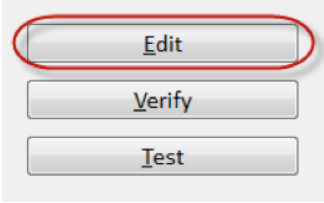
5.1 Edit

Main Menu | Edit

This option allows you to edit a test program from the Test Program List.

Select a test program and click Edit. This will take you to Tab 4: Define Instructions in the Test Program Editor.

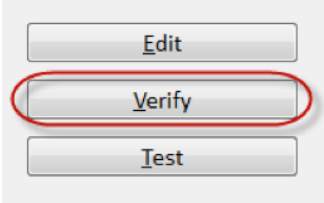
For information on editing test programs in this window, see *page 29*.



5.2 Verify

Main Menu | Verify

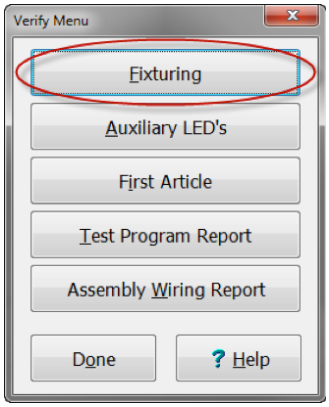
For the selected test program, select Verify to access options for verifying fixturing, **auxiliary LEDs**, and first article, or access assembly and test reports.



5.2.1 Fixturing

Main Menu | Verify | Fixturing

Use this option to ensure a test program's interfacing connectors, or fixturing, are properly wired back to the tester.



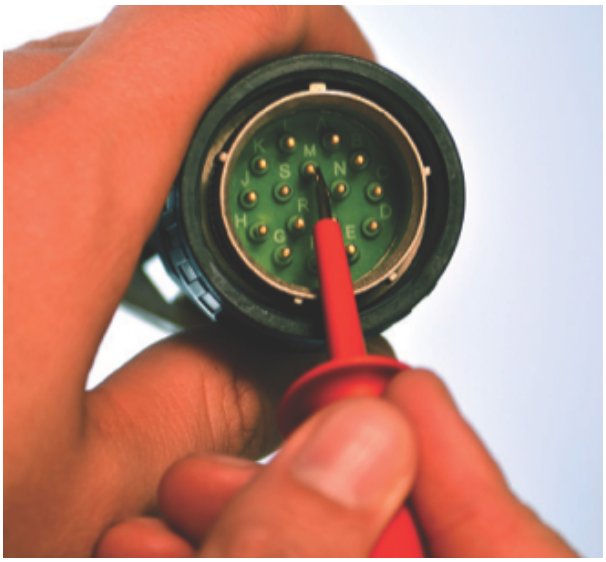
1. Attach the test fixture to the tester and select Fixturing in the Verify Menu.

   Note: *Make sure a device-under-test is not connected to the fixture.*

2. When the Test window opens, click Start.

3. You will see the Probe point and Expected point not probed messages, meaning the tester is waiting for you to probe this point. Additionally a connector graphic, if created, opens to identify which point to probe.

4. In the graphic, the dot representing the first point to be probed will be represented in red. Touch your probe to the corresponding point. The represented point on the screen will turn from red to blue and you will hear a tone to indicate the point is attached. (If you do not hear a tone, see *page 94* to check your sound).



5. Continue probing the indicated pins. When all points are probed, the Test window will either display Good and you will hear a trumpet tone, or it will display Bad and you will hear an error tone.

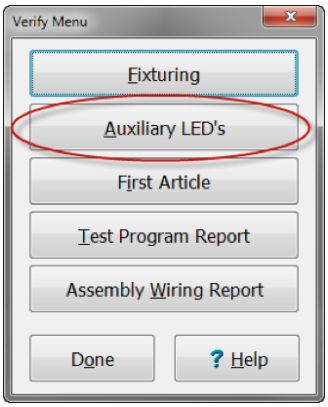
   If you noted any errors while probing points, correct them and retest the fixturing.

5.2.2 Auxiliary LEDs

Main Menu | Verify | Auxiliary LEDs

For test programs that use auxiliary LEDs, this option lights each LED in order to allow the user to verify that the LEDs on the test board are labeled and illuminate correctly.

Note: *For more information about setting up LEDs, see the Help System.*



1. In the Verify menu, click Auxiliary LEDs. The Test window will open prompting you to start the verification process.

2. Click Start. The tester attempts to illuminate the first labeled auxiliary LED. On the screen the software will indicate which LED is being tested.

3. Once you verify that the LED illuminates and is correctly labeled, click OK. The tester then attempts to light the next labeled auxiliary LED.

4. Continue the verification process for each auxiliary LED. When all of the auxiliary LEDs have been verified, the Test window displays Good.

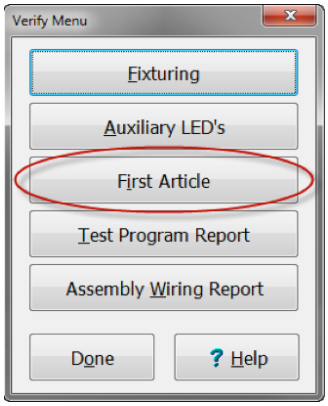
   If not all of the auxiliary LEDs illuminate or there are other errors, the Test window will display Bad. Correct these errors and verify the LEDs again. If you need help to correct the errors, contact Cirris.

5.2.3 First Article

Main Menu | Verify | First Article

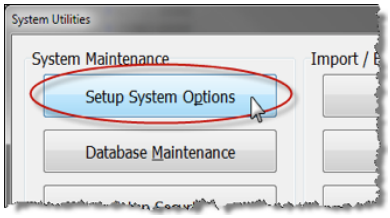
After a test program is created or changed, First Article Verification requires that the first tested assembly is approved by a supervisor or other authorized user. This prevents unauthorized users from making changes.

Note: *The authorized user must have the Edit-Test Control security setting selected to sign off on the First Article Verification* *(page 80)**.*

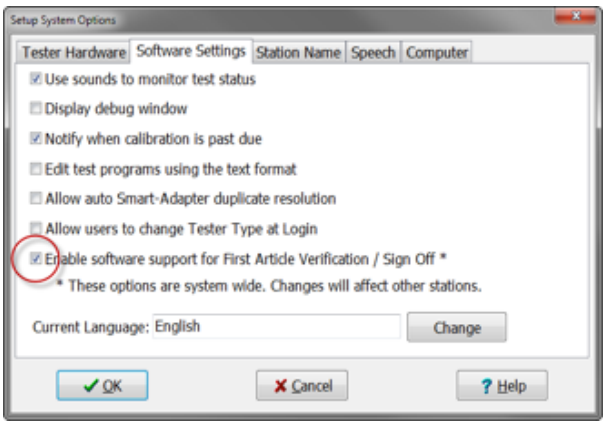


1. To enable First Article Verification, click Utilities in the easy-wire main menu.

2. Select Setup System Options.

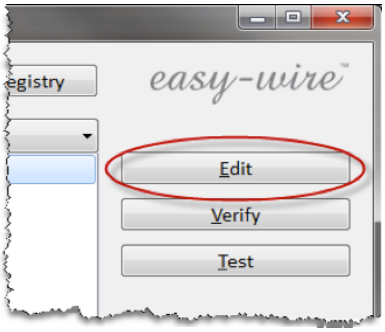


3. Select tab 2, Software Settings, and click the box next to Enable software support for First Article Verification / Sign Off.

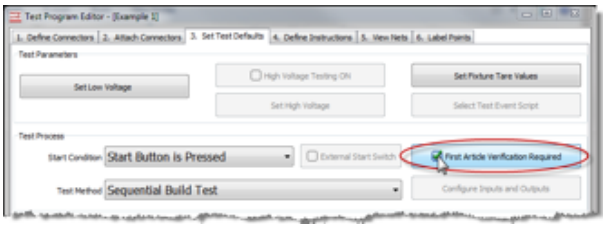


4. Click OK when finished.

5. From the easy-wire main menu, select a test program and click Edit.

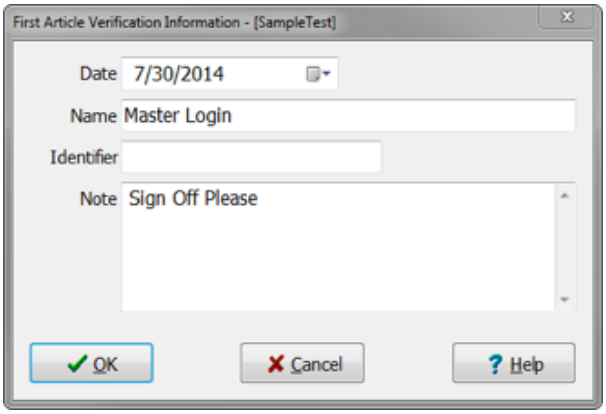


6. Select tab 3, Set Test Defaults. Under Test Process, check the box for First Article Verification Required.

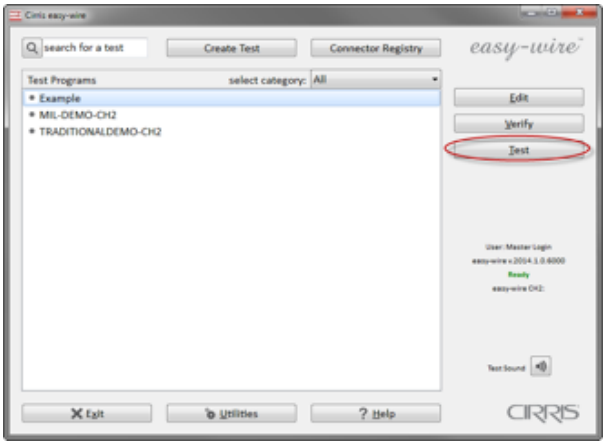


7. Click Done and save the test program. The First Article Verification Information window will appear. Fill out each box as needed and click OK.

   - **Date:** Refers to the last time the test was saved.
   - **Name:** The login name of the person that signs off the First Article Verification.
   - **Identifier:** Allows a change order number or other information to reference the change.
   - **Note:** Allows you to record the reason for the change or other related notes.



8. From the easy-wire main menu, check that the test program is still selected and click Test.



9. Connect a known good device to the tester.

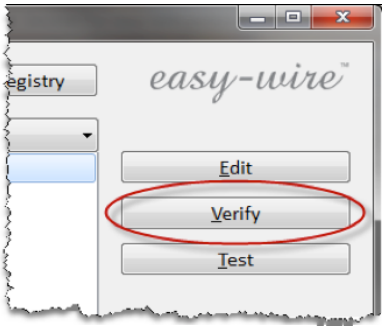
10. In the Test window, click Start.

11. When the test is finished, instead of displaying Good, the Test window will display Bad with the message, #102 First Article Verification needs sign off.

    The test cannot pass until the verification is signed off.

12. To sign off verification, click Done to exit the Test window, but leave the device-under-test connected.

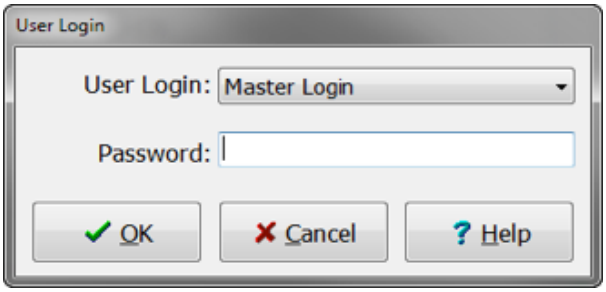
13. Select the test program in the easy-wire main menu, and click Verify.



14. Click First Article. This button will be available (not disabled) after the device has tested good.

15. When the User Login window appears, the user authorized to confirm the first article must log in.

    Note: *The person verifying the test does not need to match the person logged into easy-wire (this allows a supervisor to confirm the first article without changing logins).*



16. The First Article Information window will appear, review the information in this window, then click OK to complete the verification.

    Note: *Once verified, a test program does not need first article verification again until the test program is changed in the test program editor.*

5.2.4 Test Program Report

Main Menu | Verify | Test Program Report

The Test Program Report documents a test program for a particular device and allows you to verify the test program. This report gives information on company information, system settings, test parameters, fixturing, connector wiring, test instruction, nets, first article verification, and data summary. For more information on formatting these reports see *page 57* or the Help System.

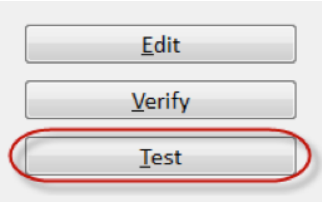
5.2.5 Assembly Wiring Report

Main Menu | Verify | Assembly Wiring Report

The Assembly Wiring Report allows you to reference all Connector Wiring Detail Reports which give a graphical view and listing of all connections for a given assembly. Two columns display the connector names and splice names on each side of an assembly. For more information on formatting this report see *page 57* or the Help System.

5.3 Test

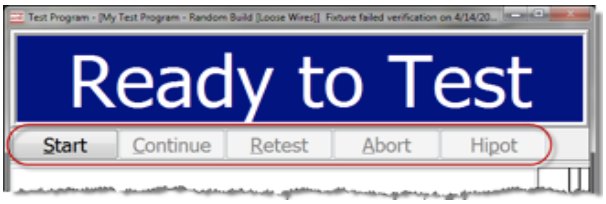
After selecting a test program in the easy-wire main menu, click Test to access the Test window.



5.3.1 Test Window

Main Menu | Test

Each option in the Test window may behave differently depending on the device attached and parameters set in the Test Program Editor *(page 24)*.



- **Start:** Starts the test.
- **Continue:** Continue through test instructions when the test stops on an error or uncompleted instruction
- **Retest:** Repeats the test of the device just tested.
- **Abort:** Stops the test immediately and is logged as an error.
- **Hipot:** Starts the high voltage (HV) test. This button becomes active after the Low Voltage (LV) test has been completed.

WARNING! *Do not touch the assembly during the high voltage test or injury may occur.*

5.3.2 Testing

Main Menu | Test

Testing is performed in the following order:

Low Voltage Test

- Test Instructions
- Shorts Test

If high voltage is selected:

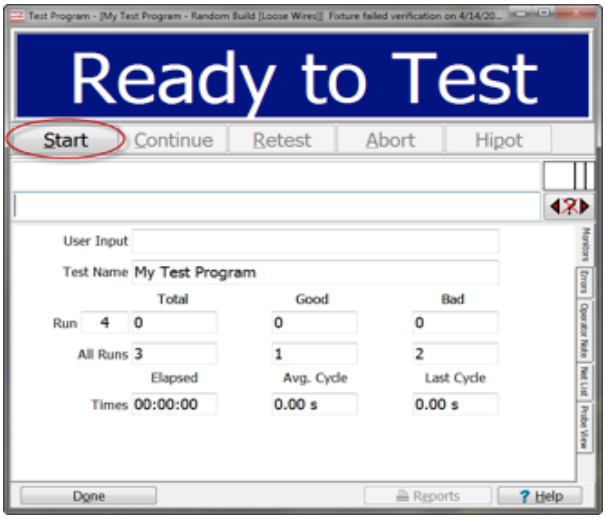
High Voltage Test (CH2 Only)

- Dielectric Withstand Test
- Insulation Resistance Test
- Custom HV Instructions Test

---

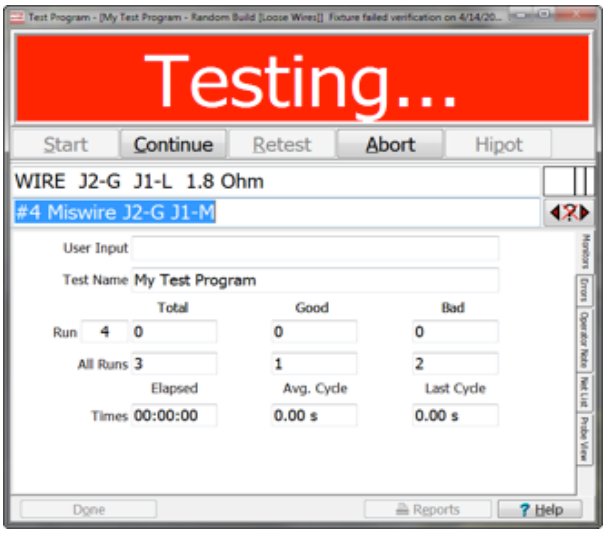
1. Attach an assembly to the tester.

2. In the Test window, click Start. A low voltage test is performed. The LV test performs each test instruction (wires, resistors, diodes, etc) then runs a shorts test.



3. In build test modes, the test will stop on errors and uncompleted instructions.

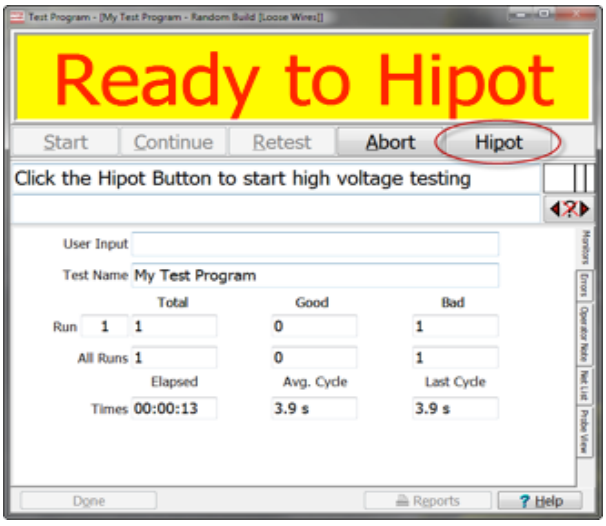
   Note: *The LV test must pass before moving onto the HV test.*



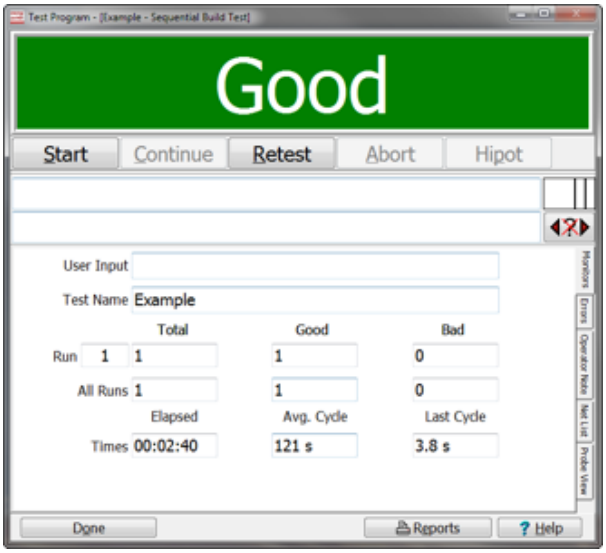
4. (CH2 Only) After the tester is finished running the LV test portion, the HV test will start (if a high voltage test has been selected). Unless set to automatically begin, click Hipot.

   At the start of HV testing, the Dielectric Withstand (DW) test is performed. If this test fails, testing stops. If the DW test passes, the Insulation Resistance (IR) test is performed. For more information on DW and IR tests, see *page 26*.

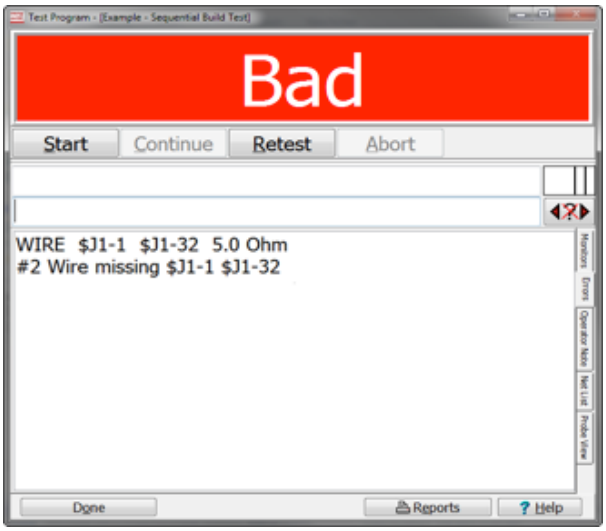
   Note: *You must have an HV Interlock Override or switches connected to the tester in order to test with high voltage.*



5. If the test results are Good, you will hear two trumpet tones. Either connect the next device to perform the testing process once more, or click Done to return to the easy-wire main menu.



6. If the test results are Bad, the software will play a tone and display the details of the error. Common errors are shorts, wires missing, miswires, component errors, and high voltage errors. See *page 53* for more information on errors, or refer to the Help System for a complete list of errors and advice on correcting them.

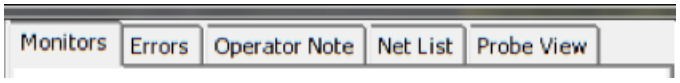


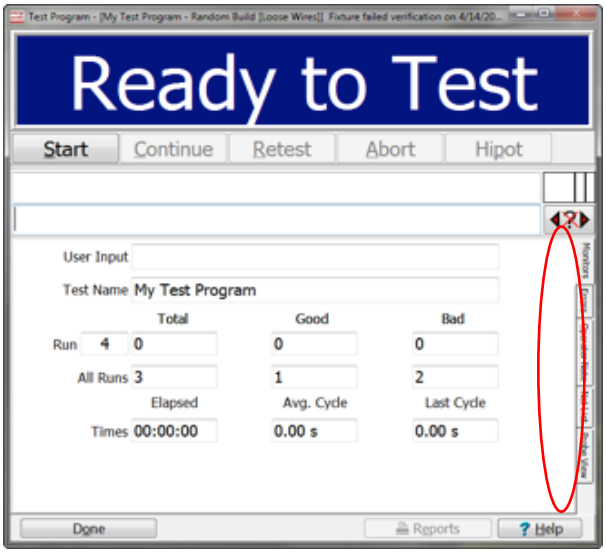
5.3.3 Test Window Tabs

Main Menu | Test

Tabs are positioned vertically along the right side of the Test Window (turned horizontally in image).

Each tab displays important test information. To control what information shows in these tabs, see *page 28*.



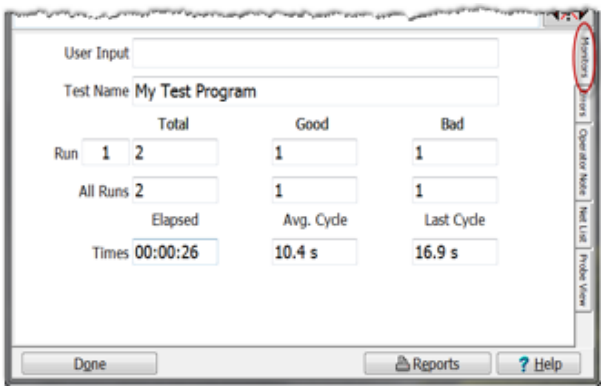


5.3.4 Monitors

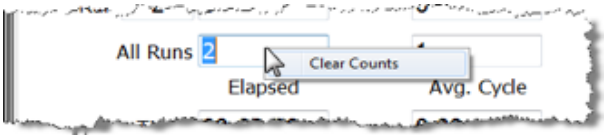
Main Menu | Test | Monitors

Test Statistics

Test statistics are displayed in the Test window and are recorded to the database for reporting.



- **Run number:** The number of times a test program has been used for a test session.
- **Run Total:** Total devices tested in a specific run.
- **Run Good:** Total good devices in a specific run.
- **Run Bad:** Total bad devices in a specific run.
- **All Runs:** Displays information for the lifetime of the test program. To reset the All Runs information, right-click in the box and click Clear Counts.



Note: *You can reset the All Runs statistics, but you cannot reset the statistics of the current run. The reset will only affect the current Test window, not the stored data. Closing the window and reopening it will bring back the All Runs statistics.*

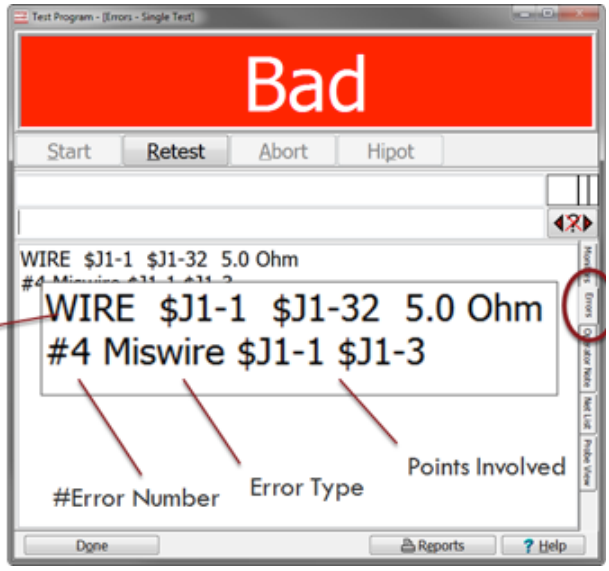
- **Time Elapsed:** Duration the present Test window is open after the start button is clicked.
- **Time Average Cycle:** Average time it takes to complete a test cycle.
- **Time Last Cycle:** Duration of the last test.

5.3.5 Errors

Main Menu | Test | Errors

This tab displays the errors that have occurred while testing the attached device. Common errors are shorts, wires missing, miswires, component errors, and high voltage errors. For a full list of errors, visit the Help System.

Error details include the failed instruction, the error number, the error type, and points involved. For more information on errors, see *page 53*.



5.3.6 Operator Note

Main Menu | Test | Operator Note

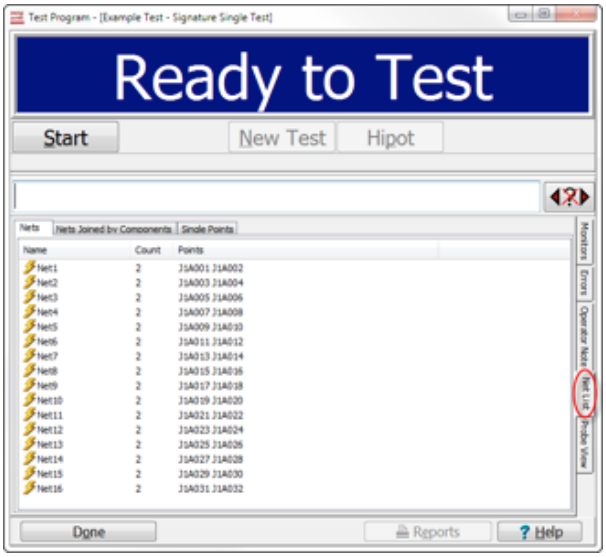
View the Operator Note created during test setup *(page 28)*. The Operator Note tab remains active until the operator selects a new tab or starts the test. The operator may click the Operator Note tab to reference it later in the test.

> ***Note:*** *Only one operator note may be assigned to a test. However, a Parent Test and each of its Child Tests can display a different operator note. Therefore different operator notes may be displayed to the operator throughout the Parent Test.*
>
> *Parent/Child Tests are created from the main menu through a right-click option. For more information, see the Help System.*

5.3.7 Net List

Main Menu | Test | Net List

Use the Net List tab to view all test points in a net. This provides a quick way to view the composition of a net. It is especially useful for diagnosing faults.



Net List Tabs:

- **Nets:** Each net starts out listed by the word Net and the From and To points are sorted alphanumerically.
- **Nets Joined by Components:** Resistors, diodes, etc. list under the tab Nets Joined by Components. If the component is connected to a wire, its connection will be listed by the name of the net containing that wire.
- **Single Points:** Points defined in the test which are not part of a net are listed in this tab.

5.3.8 Probe View

Main Menu | Test | Probe View

An operator can probe a point on the device connected to the tester. Probing a point will display helpful net and error information such as shorted or open points.

> ***Note:*** *If you are testing in single test mode and find that the probe is not showing all the points attached to a probed point, try using sequential build or random build modes as they have been designed to better diagnose and correct errors.*

6. Errors

When a cable/assembly fails a test, the Test window will display information about the errors that caused the failure *(page 50)*. The following examples show frequent errors operators may encounter.

Note: *For a more complete list of common testing errors, see the Help System.*

6.1 Low Voltage Errors

An assembly should pass a low voltage test before the system performs a high voltage test. If the device fails the test, an error message will detail the reason for the failure. Error messages include the error number and name. For a full list of errors, see the help system.

Common low voltage errors include:

"#2 Wire Missing Error"

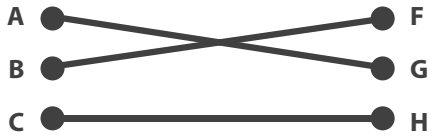
- The intended electrical path contains a gap, across which, electric current cannot pass (also called an Open).

"#3 Short Error"

- An unintended connection between 2 or more points. This failure indicates insufficient insulation between metal conductors which were not intended to be connected.

"#4 Miswire Error"

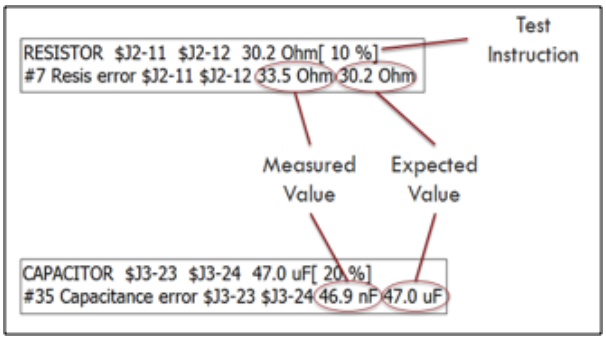
- An unintended connection which is the result of a misplaced contact within a connector. This error is often referred to as an Open and a Short combined.



6.2 Components Errors

Component instructions in a test specify an expected value and tolerance range. When the tester measures a value outside of the tolerance range, the instruction will fail and the error message will report the failed instruction, the value the tester measured, and the expected value.

Not only will the message list the test instruction, but you will also find expected values and measured values. This will help you know how best to repair the error.



6.3 High Voltage Errors

For more information about high voltage testing and the types of errors you could encounter, visit www.cirris.com and search for high voltage errors. For further help, contact Cirris for a training class.

■ *Common high voltage errors:*

#142 DW Charge > 45uC at V Error

#143 IR Charge > 45uC at V Error

- This error indicates that the charge limit of 45uC was reached. This limit is in place to ensure safety while testing, so testing is immediately halted when the limit is reached.
- This error is most likely caused when the tester was charging the net or point given in the error message and the capacitance in the DUT was too high.
- The voltage displayed in the error message is the last voltage reading taken just before the charge reached 45uC. You can estimate the capacitance in the DUT by the equation C = uC / Voltage.

#144 DW Arc Error

#145 IR Arc Error

- This error indicates that an arc occurred during the hipot test of the net or point given in the error message. This error will occur anytime the current exceeds the 'DW Max Current' test setting, but is most commonly the result of an arc.
- The voltage displayed is the voltage measured just before the arc occurred.
- This error most often occurs in pairs – that is two different nets will fail with this same error. This generally means that the arc is occurring between these two nets. If the error occurs only on a single net it may be the result of a highly capacitive net such as a shield. See *page 34* for custom HV settings that can help with highly capacitive nets.

#146 DW Current High Error

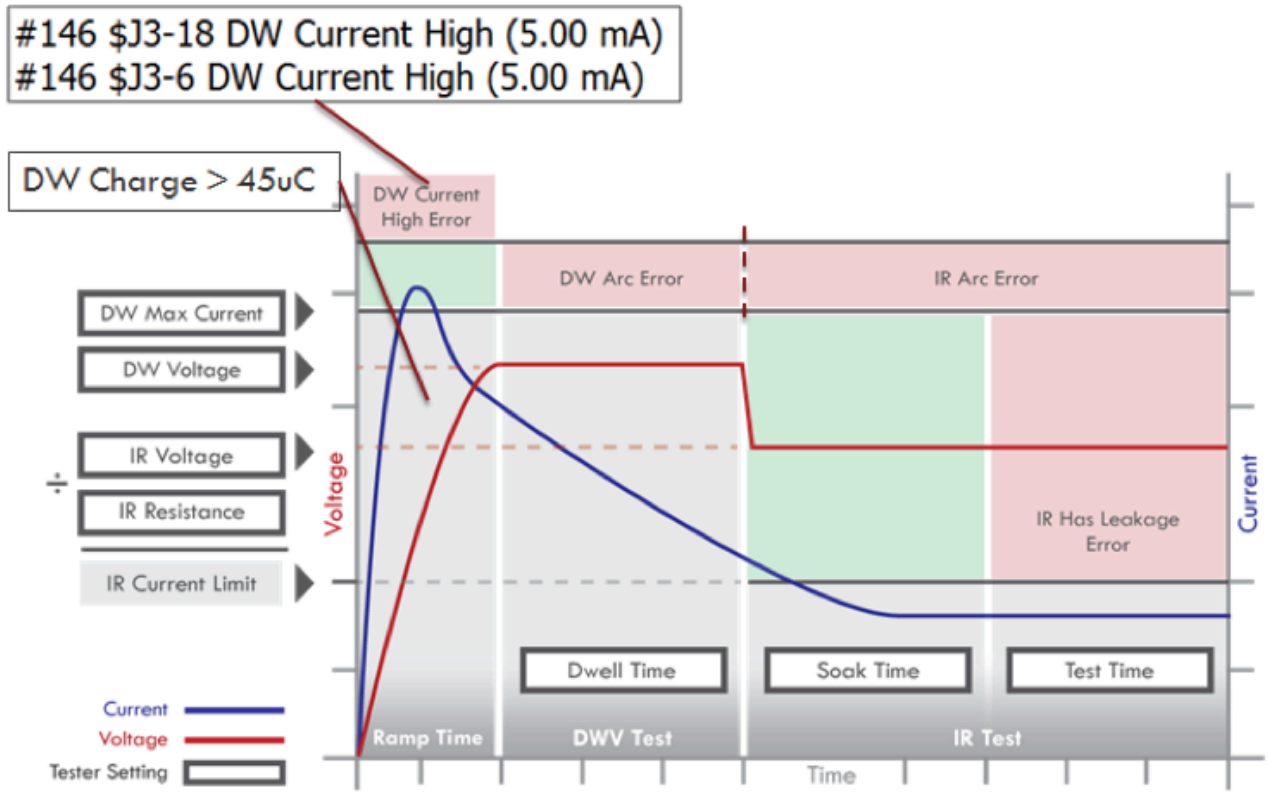
- This error indicates that the current has exceeded an internal limit during the ramp phase for the net or point given in the error message. This often means that there is an unintended (near) connection in the device so that more current is flowing than expected as the tester ramps up to the test voltage.
- This error message will only come up for a Hipot test that is using DC voltage. For AC testing you may see the related errors, #147 DW Total Current High or #148 DW Real Current High.

#150 IR Has Leakage Error

- This error indicates that the current leakage is higher than specified by the IR Resistance test setting. The current limit may be calculated by the equation Current Limit = IR Voltage / IR Resistance. The current exceeding this limit means that the insulation did not meet the specified threshold. If the Store High Voltage IR Values option is selected in the test settings (see *page 28*) then the measured IR Resistance value will be available on the test report.

HV Errors Graph

The graph represents a normal, good set of high voltage tests. The red line represents voltage while the blue line represents current. If the blue current line ever enters one of the pink regions, the specified error will result.



7. Reports and Printing

7.1 Report Types

Through easy-wire, Cirris provides multiple types of reports to provide test results, ensure 100% quality, and improve your testing processes.

■ In-Process Report

Shows the test status of an assembly that is connected to the tester. Once completed, an In-Process Report becomes a Test Report.

> ***Note:*** *In-Process Report results are not saved automatically like other reports; therefore, the In-Process Report can be used to correct assembly errors while the assembly is connected without having the errors display in the report. Once the tested assembly is disconnected, the test results will be saved and can be accessed using the corresponding Test Report.*

■ Test Report

Records whether a DUT passes or fails a completed test along with measured values and other test information. This is the final report for a cable/assembly.

■ *Test Label*

Prints a Test Label for labeling a device after it has been tested.

■ *Run Report*

Each line of the Run Report shows summary and statistical information (pass/fail, serial number/ etc) for each DUT tested in a test run.

■ *Test Program Report*

Documents a Test Program's setup, layout, settings, etc. for a particular device.

■ *Assembly Wiring Report*

Allows you to reference all Connector Wiring Detail Reports for a given assembly.

■ *Connector Wiring Detail Report*

Shows both the schematic diagram and the wiring instructions for connectors in an assembly. The software creates one report for every two connectors in the assembly that are interconnected.

■ *Test Archive Report*

Any report found in Search Test Archive is a Test Archive Report (see *page 92*). These reports are non-configurable.

7.2 Formatting Reports

Reports are customizable to your specific needs. Each report is made up of blocks of information that can be changed, removed, or added.

Printing and saving functions are limited depending on where you open the report. The following chart shows the available options from opening a report from a certain location.

Report Name	Edit Window	Verify Menu	Test Window	Utilities Menu
Test Program Report	Edit Layout	View/Print	View/Print	
Assembly Writing Report	Edit Layout	View/Print	View/Print	
In-process Report	Edit Layout		View/Print	
Test Report	Edit Layout		View/Print	View/Print
Test Label	Edit Layout		Print Only	
Run Report	Edit Layout		View/Print	

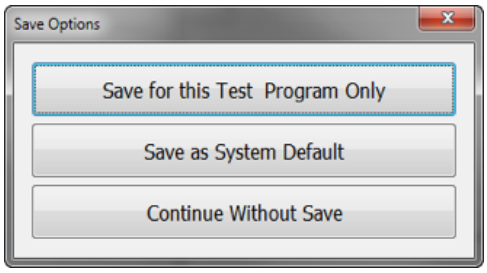
With the report opened, you can arrange the information into a format that meets your needs. Information is arranged into blocks and fields of data. These areas of information can be added, removed, and formatted.

For information on formatting Bitmap Graphics and Columns, visit the Help System.

Once you have made all desired changes to a report, click the X in the top right corner and select an option from the window that opens.

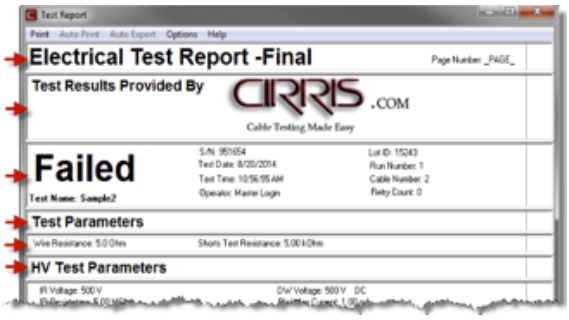
- **Save for this Test Program Only:** Saves changes only in the test program.
- **Save as System Default:** Allows changes to be set as default for all future test programs.
- **Continue Without Save:** Closes window without saving changes.

Note: *For information on formatting Bitmap Graphics, Columns, and Page Setup, see the Help System.*



7.2.1 Formatting Blocks

Blocks are sections in a report that are separated by borders, as shown in the image to the right.



■ *Change the block size*

1. Move the mouse over the border of a block until the cursor changes from the arrow to the divider.

2. Click and drag the border up or down to size the block.

■ *Show/hide a single block*

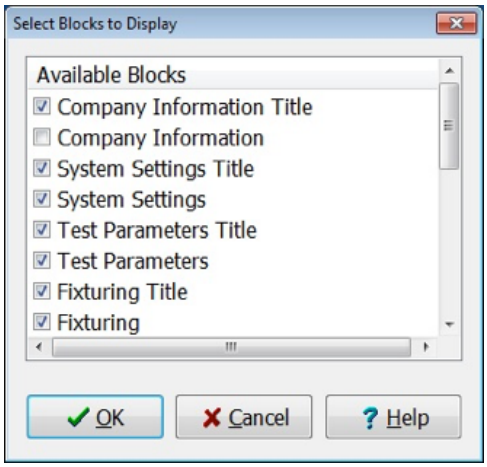
1. Select Options from the menu bar.

2. Click an unchecked block name to show the block, or click a checked block name to hide the block.

■ *Show/hide a set of blocks in one operation*

1. Select Options from the menu bar, and click Show/Hide Blocks.

2. Check the boxes of the blocks you want to show, and un-check the boxes you want to hide.



7.2.2 Formatting Fields

Fields are text found inside blocks.

■ *Add (show) a field*

1. Point the cursor over the block where you want to add a field.

2. Right-click to open the cursor menu, and click Add Field.

3. The available fields for that block will be listed. Select the field that you want to add.

4. Click and drag the new field to the desired position in the block.

5. Select the field and use arrow keys for more precision.

■ *Change the text/spelling of a field*

1. Click on a field to highlight it, right-click to open the cursor menu, and click Edit Field.

2. In the dialog box that opens, change the text, and click OK.

   Note: *Some field text cannot be edited. If the Edit Field menu selection is grayed-out, no field has been selected, or the selected field cannot be changed.*

■ *Delete (hide) a field*

1. Click on the field that you want to delete (hide) to highlight it.

2. Right-click to open the cursor menu, and click Delete Field.

   Note: *If the Delete Field menu selection is grayed-out, no field has been selected.*

■ *Show or hide a field heading*

1. Click on the field heading that you want to show or hide to highlight it.

2. Right-click to open the cursor menu.

3. To show, click Show Field Heading to add a check mark. To hide, click Show Field Heading to remove a check mark.

■ *Change a default field heading*

You can only add pre-established fields for each specific block; however, optional fields are available that allow you to hide the default field heading and enter your own field heading.

1. Click the field heading you want to replace, and right-click to open the cursor menu.

2. If the Show Field Heading is checked, click on it to remove the check.

3. Point the cursor over the block, right-click to open the cursor menu, and click Add Field.

4. Click on an optional field.

5. Click the optional field to highlight it, right-click to open the cursor menu, and click Edit Field.

6. Change the text and click OK.

7. Click and drag the new title to the desired position.

■ *Change the font of a field*

1. Click a field to highlight it, and right-click to open the cursor menu.

2. From the cursor menu, click Change Font.

3. In the dialog box that opens, make the desired changes, and click OK to accept or Cancel to discard.

   Note: *Fonts must be changed one field at a time. If the Change Font menu selection is grayed-out, no field text has been selected.*

7.3 Print

To Add/Remove a printer, see *page 75*.

Cirris easy-wire software allows you to print from each report window.

1. Select Print from the menu bar, and click Print Report.

2. In the Print window, click OK.

7.3.1 Print to a PDF file

1. Select Print from the menu bar, and click Save Report to .pdf file.

2. Browse to a location where you want to save the file, and click Save.

7.3.2 Auto Print

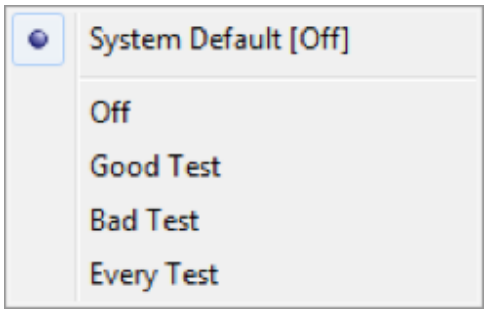
Auto print reports include:

- In-Process Reports
- Run Reports
- Test Reports
- Test Labels

Note: *In-Process Reports auto print before removing the cable/assembly. Test Reports and Test Labels auto print after the device is removed. Run Reports auto print after the Test window is closed.*

■ *To setup auto print:*

1. Select Auto Print from the menu bar, and then select an option.



2. After making changes, close out of the report.

3. Click Save for this test program only to have the report auto-print for this test alone, or click Save As System Default to save this test report and printing option as a template for all test programs.

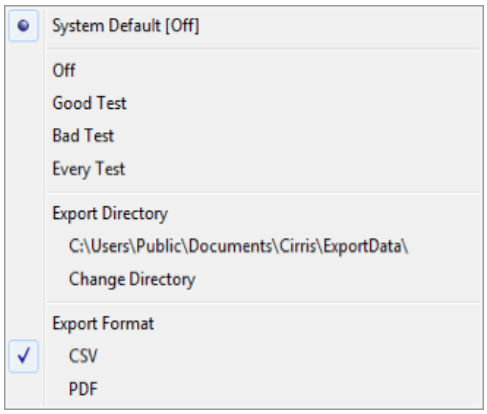
7.3.3 Auto Export

Auto export reports include:

- In-Process Reports
- Run Reports
- Test Reports
- Test Labels

Note: *In-Process Reports auto export before removing the cable/assembly. Test Reports and Test Labels auto export after the device is removed. Run Reports auto export after the Test window is closed.*

1. Select Auto Export from the menu bar, and then select an option.



2. Be sure to choose PDF or CSV.

3. After making changes, close out of the report.

Click Save for this test program only to have the report auto export for this test alone, or click Save As System Default to save this test report and exporting option as a template for all test programs

8. Smart-Lights

Smart-Lights remove the process of mapping test points for every new test setup. With Smart-Lights you may plug your interface cables anywhere on the tester and the software will recognize them. Using Smart-Lights allows for quick and error free test setup.

For more information on Smart-Lights, visit cirris.com and search for Smart-Lights.

Smart-Adapters are interfacing connectors that have Smart-Lights attached. Smart-Adapters must be registered with the easy-wire software before being used. Once the Smart-Adapters are registered and attached, the hardware will scan for them and the software will be able to immediately identify connectors types and placement on the tester.

8.1 Register Connectors with Smart-Lights

You must first create Smart Adapters in the connector registry before you can use them in tests. This process only needs to be performed the first time you use a Smart Adapter. Once a Smart Adapter is registered, the software can identify it in subsequent tests.

1. Begin by Attaching Smart-Lights to your cables (Instructions for this will be given with delivery of Smart-Lights, or you can visit the Help System for more information). With a Smart-Light attached, your adapters/connectors are considered Smart-Adapters.

2. If the connectors you are using with Smart-Lights do not already exist in the Connector Registry, they must be created first (see *page 8*).

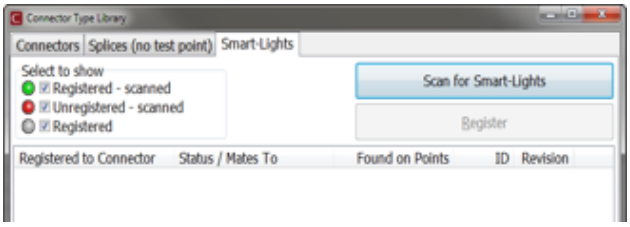
   Note: *You can add a connector without creating it from the Connector Registry if the connector is supported by the Cirris Connector Generator. Select a connector. When the connector list shows, type the name of the connector and it will be auto-generated and added to the connector list. For more information on the Cirris Connector Generator see page 10.*

3. Select the Smart-Lights tab in the Connector Registry window.

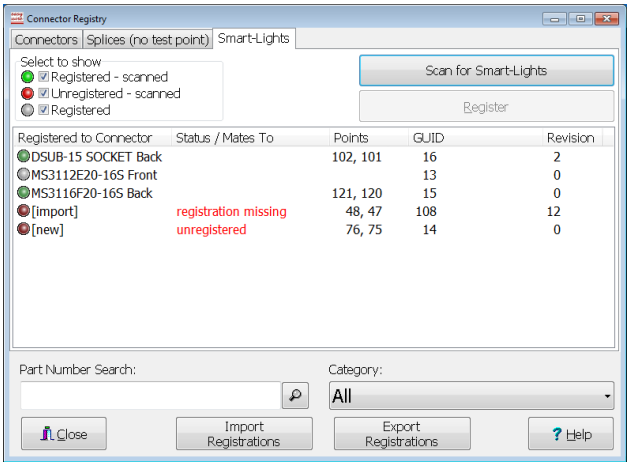
4. Attach the Smart-Adapters you want to register to the tester.

   Note: *Connectors must be registered in order for the software to identify them, though with Smart-Lights attached it does not matter where cables are plugged in on the interface.*

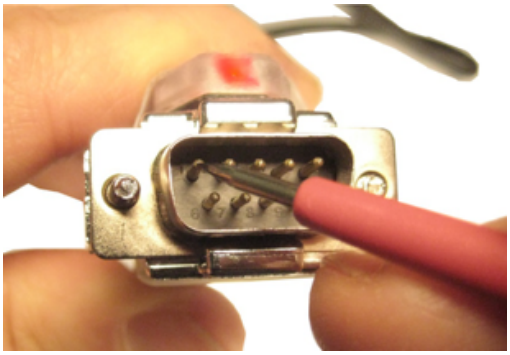
5. Click Scan for Smart-Lights. The software will list all of the registered Smart-Adapters and all of the attached Smart-Lights in the Registered to Connector list.



6. If there is an unregistered Smart-Adapter in the list, or if the registration is missing (as seen in the Status/Mates To Column), select the Smart-Light and click Register. A list of connectors will appear. From the list of connectors, select the connector that the Smart-Light is attached to.



7. As the pin is displayed red in the connector image (if an image was created for the connector), probe each corresponding pin of the Smart-Adapter (see *page 21* for more information on probing connectors).

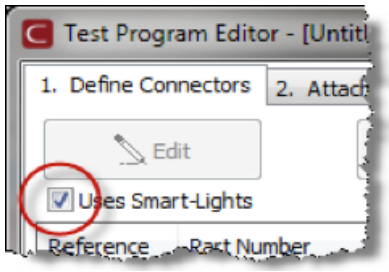


Note: *If you attempt to register a Smart-Light with a status of registration missing, a warning will appear that your Smart-Light may be registered in another system. If you click continue, the registration will no longer be valid on the system to which it was previously registered.*

8. Once you have probed all of the points and the LED on the Smart-Light turns green, it has been successfully registered. Repeat the process to register more Smart-Lights or click Done to save changes and return to the Main Menu.

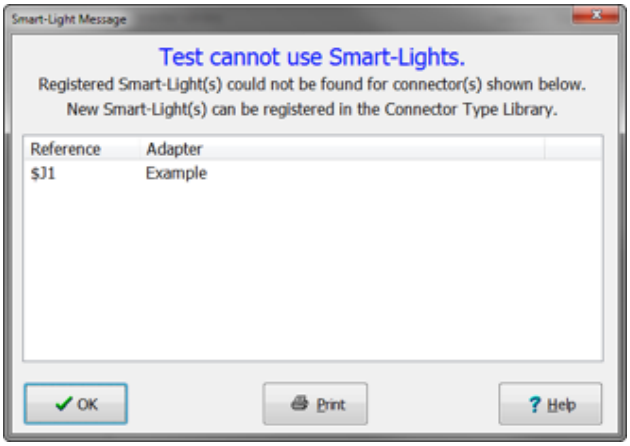
Note: *To unregister a Smart-Adapter, right-click the Smart-Adapter in the Registered to Connector list and select Unregister.*

9. If you are adding Smart-Lights to an existing test program, open the test program in the Test Program Editor. In Tab 1, Define Connectors, the Uses Smart Lights box should be checked.



10. If any connectors have not been registered with Smart-Lights, a message window will appear listing the unregistered connectors.

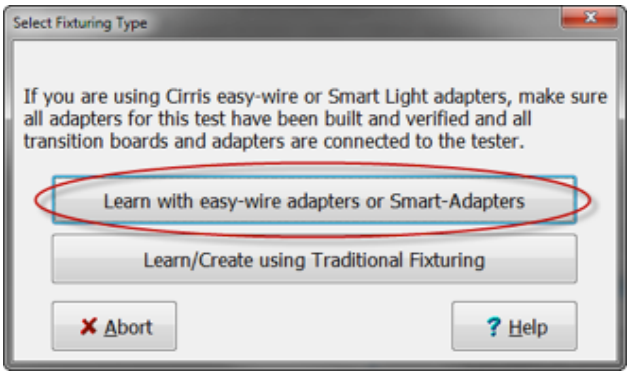
    Note: *You cannot mix traditional fixturing with Smart-Adapters.*



8.2 Create a Test with Smart-Lights

Once Smart-Adapters are created in the Connector Registry, the software is able to use them in tests.

1. To create a new test program using Smart-Adapters, attach the Smart-Adapters required for the test and a known good device to the tester. From the main menu, click Create Test. When given the option to select how the device is learned, click Learn with easy-wire adapters or Smart-Adapters.

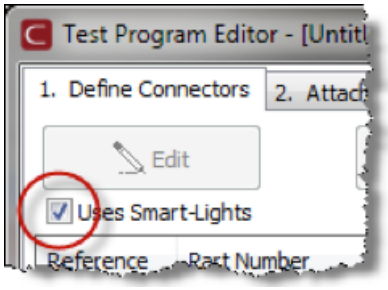


2. The software will scan for Smart-Adapters, causing the LEDs on the Smart lights to flash. The Learn Attached Device window will allow you to then create test instructions for the attached DUT (for more information on how to learn an attached device, see *page 31*).

3. The Define Instructions tab will show with a list of instructions for the attached device.

4. The Define Connectors tab will display a list of the attached Smart-Adapters. The Smart-Adapter's references ($J1, $J2, etc) should be changed to match your specification.

5. The Uses Smart-Lights box will now be checked in the Define Connectors tab.



6. Once you have verified that the test program is correct, click Done to give the test a name and save changes. You will now be able to test using Smart-Lights.

For more information on Smart-Lights, visit www.cirris.com.

9. easy-wire Adapters (CR only)

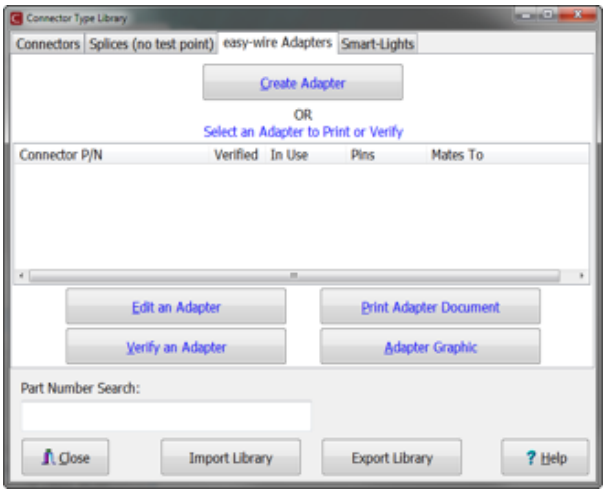
easy-wire Adapters are harness board adapters used to connect the Device-Under-Test to your CR tester. They differ from adapters used in Traditional fixturing by how they are constructed, how they connect to the tester, and by how the software handles them.

You must have already built harness boards for your easy-wire adapters. If this step has not been completed, see the CR Fixturing Guide before continuing.

For information on building easy-wire Adapters and harness boards, see the CR Fixturing Guide, or visit the Help System.

> ***Note:*** *easy-wire Adapters are now mostly replaced by Smart-Lights (see page 63).*

The easy-wire Adapters tab, found in the Connector Registry, allows you to create, edit, and verify easy-wire adapters, create graphics, and print Build Documentation.



9.1 Register easy-wire Adapters

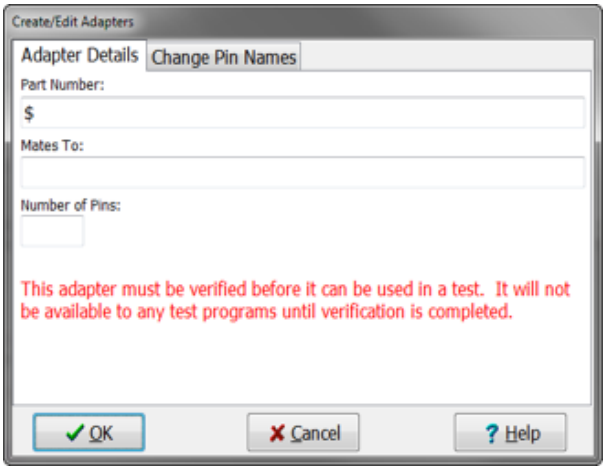
You must first create easy-wire Adapters in the connector registry before you can use them in tests.

1. To create a new easy-wire adapter, click Create Adapter.

   > ***Note:*** *easy-wire adapters must be verified before they can be used in tests. This guarantees that the adapter was wired correctly (in accordance with the Build Document).*

2. In the Adapter Details tab, you can enter the information about your adapter.

   - **Part Number:** You cannot change the part number after the adapter has been created.
   - **Mates To:** Description of the connector on the device-under-test.
   - **Number of Pin:** The number of pins in the connected adapter that will be used for testing (does not include the two LED pins). You cannot change the number of pins once the adapter has been created.

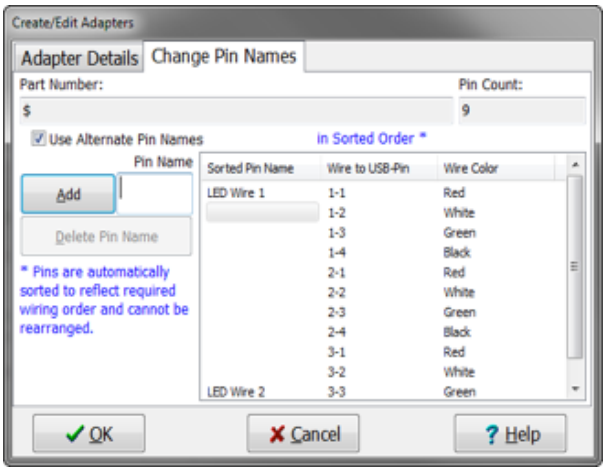


3. In the Change Pin Names tab, select a pin from the panel on the right and click inside the square to Use Alternate Pin Names. Type a new name inside the Pin Name field and click Add.

   To delete pin names, select a pin from the panel on the right and click Delete Pin Name.

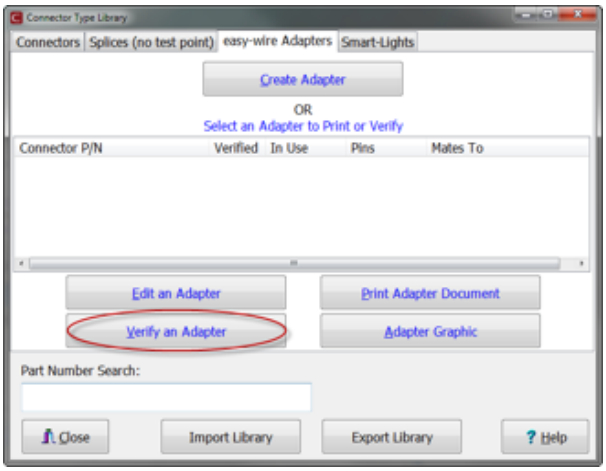
   Click OK. You will be given the option to print Build Documentation. If you choose not to print the documentation at that time, you may print it from the Connector Registry.

   Note: *easy-wire Adapters MUST be wired in the pattern specified in the Build Document.*
   To change wire color (displayed in the third column of the right panel), see page 87.

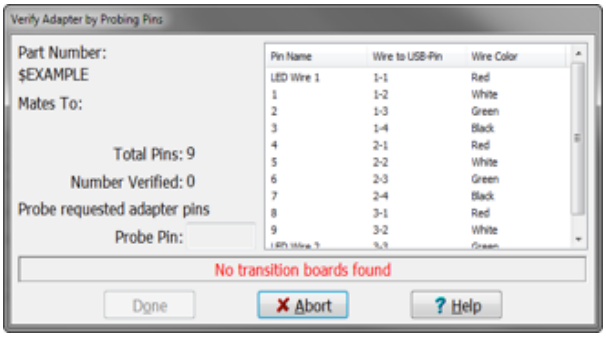


4. After adding easy-wire adapters, the adapters must be verified before they can be used in a test. This confirms that the adapter has been wired correctly as per the Build Document. Connect the easy-wire adapter transition board to the tester and connect the connector adapter to the transition board. Be sure to disconnect wires between the pins so they are all open-ended.

5. After returning to the easy-wire Adapters tab in the Connector Registry, select an adapter and click, Verify an Adapter.

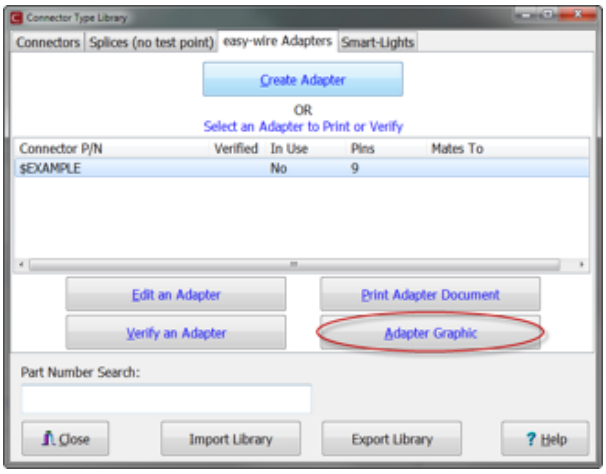


6. Probe each pin as a corresponding pin number appears in the Please Probe Pin field. If successful, you will get a message Adapter Verified Good. After clicking Done, a window will open asking you to print labels. Click Yes to print a label with verification information on it that can be attached to the easy-wire Adapter.



7. You must create a graphic of your adapter before you can complete verfication. From the easy-wire Adapters tab in the Connector Registry, click Adapter Graphic.

   For information on creating graphics using easy-wire software, see *page 11*.



8. To print easy-wire adapter documentation, click Print Adapter Documentation in the Connector Registry.

   Adapter Documentation provides necessary information to build a particular adapter including the parts list, wiring pattern, and detail build instructions.

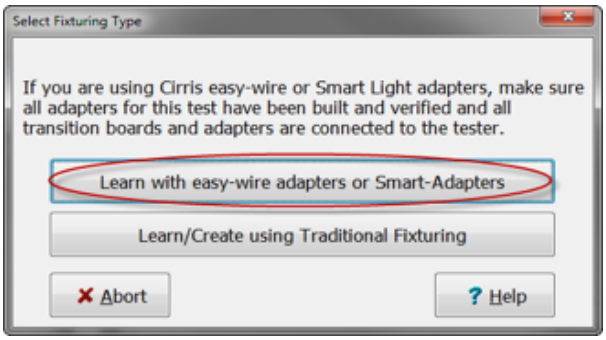
9. Create all other necessary easy-wire adapters. Click Close when finished.

   Note: *You may also import and export adapters using the footer menu of the Connector Registry.*

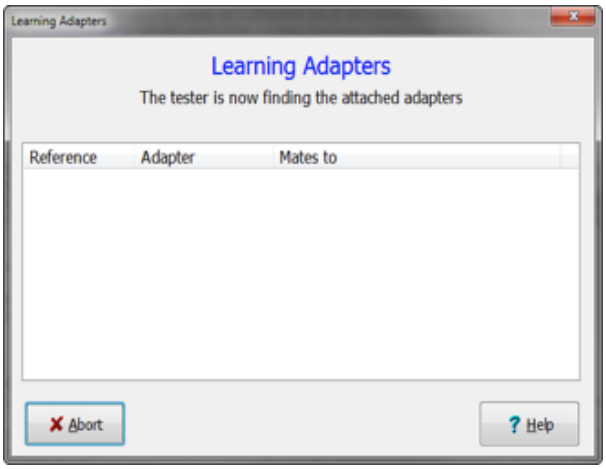
9.2 Create a test with easy-wire Adapters

Once easy-wire Adapters are created in the Connector Registry, the software is able to learn them and use them in tests.

1. Return to the easy-wire Main Menu and click Create Test. In the Select Fixturing Type window, choose Learn with easy-wire adapters or Smart-Adapters.

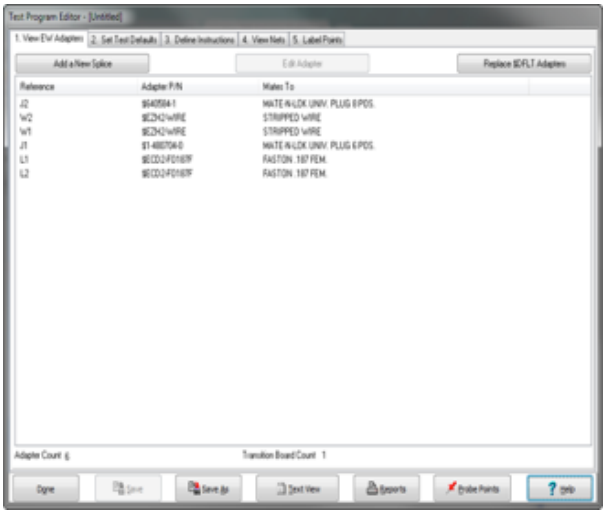


2. The software will find the easy-wire adapters created in the Connector Registry.



3. The View EW Adapters tab in the Test Program Editor allows you to view and change the information for any of the adapters used in your test.

   In the View EW Adapters tab, you can customize the test to your needs. Add splices, edit adapters, and replace default adapters. For more information on these options, see the Help System.



10. System Utilities

Accessed by clicking Utilities in the easy-wire main menu. The System Utilities menu allows you to perform a variety of tasks relating to the setup and maintenance of the easy-wire system.

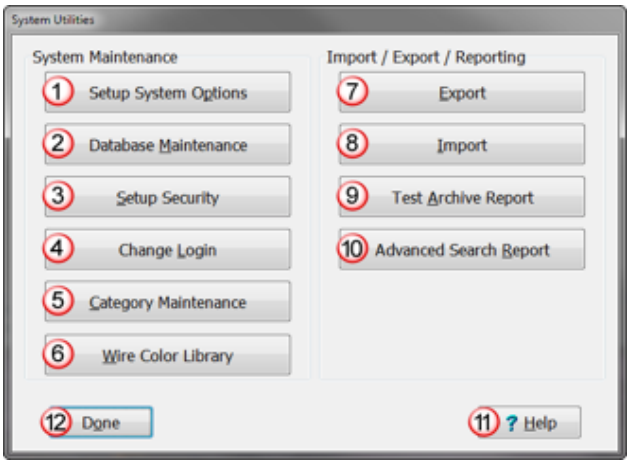
Important Terms

Calibration – Every Cirris tester that leaves our factory is calibrated in compliance with ANSI/NCSL Z540-1-1994 and ISO-10012 to standards traceable to the NIST in the United States. For more information, visit www.cirris.com and search for calibration.

Database – The location where all of your test programs, test results, users, security settings, and other important information is stored. To maintain database integrity, always keep multiple backups of your database backed up and maintained.

Station ID – An automatically generated number used to identify a test station.

Station Name – A name, chosen by the operator, used to identify a test station on reports.



1. **Setup System Options** (*page 71*)**:** Change settings in the software and hardware. For example, changing sounds and volume.
2. **Database Maintenance** (*page 77*)**:** Backup, maintenance, clean up, and location of the Database.
3. **Setup Security** (*page 78*)**:** Manage operator access via user name and password.
4. **Change Login** (*page 81*)**:** Change users without having to restart easy-wire.
5. **Category Maintenance** (*page 82*)**:** Add, change, or delete categories as desired. Categories can help you organize connector types, splice types, adapter types, and test programs.
6. **Wire Color Library** (*page 85*)**:** Add, change, or delete a wire's color.
7. **Export** (*page 88*)**:** Share and create templates, and save copies of test programs to a text file.
8. **Import** (*page 88*)**:** Import test programs from a text file.
9. **Search Test Archive** (*page 91*)**:** Search for any run report generated on the easy-wire test system.
10. **Help:** Access the Help System.
11. **Done:** Return to the main menu.

10.1 Setup System Options

Main Menu | Utilities | Setup System Options

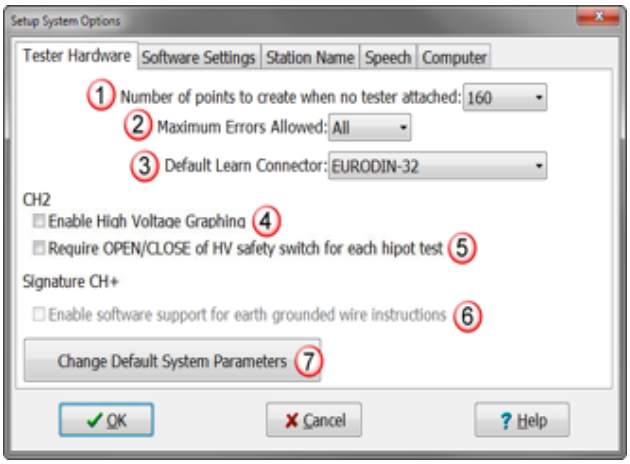
You can reach this menu by clicking on Setup System Options, the first option in Utilities. Each tab of the Setup System Options window gives access to different settings.

- Tester hardware (*page 72*): Manage hardware settings within the software.
- Software Settings (*page 73*): Customize software settings such as sound and language.
- Station Name (*page 74*): Change Station Name and View Station ID.
- Speech (*page 74*): Control the software's Text to Speech feature.
- Computer (*page 75*): Customize computer settings within easy-wire.

10.1.1 Tester Hardware

Main Menu | Utilities | Setup System Options | Tester Hardware

Controls settings between software and hardware such as number of points and errors detected. Some of these settings are tester specific.



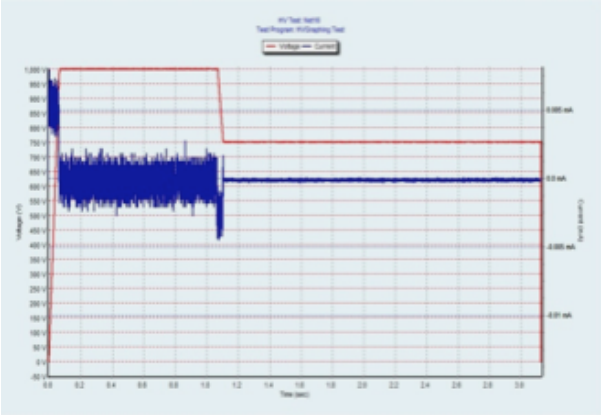
1. **Number of points to create when no tester attached:** Used when editing test programs without a tester connected. The value defaults to the number of test points of the last tester attached but can be changed to the number required for your current test.

   Note: *Choose the number of points needed so the software can allow programming from available test points.*

2. **Maximum Error Allowed:** Limits the number of errors found in a test before the test is automatically aborted.

3. **Default Learn Connector:** Select the type of connector to use by default when learning a new device. If you use a different intermediate interfacing connector it can be changed to match.

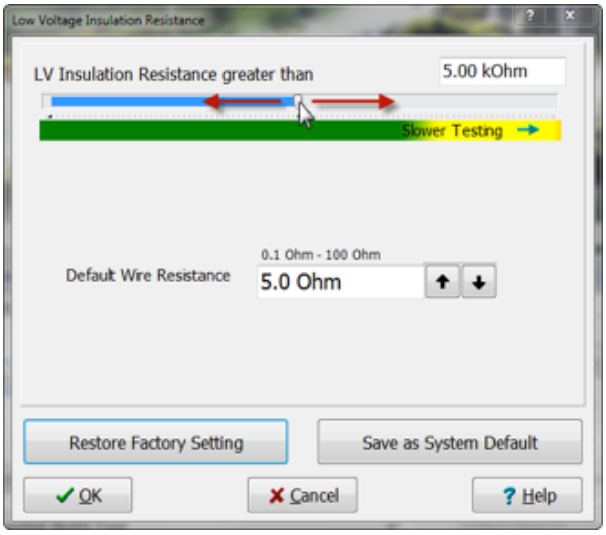
4. **CH2—Enable High Voltage Graphing:** Turns on graphing for high voltage testing. To activate this feature, contact a Cirris sales representative.



5. **CH2—Require OPEN/CLOSE of HV safety switch for each hipot test:** Select this option only when using an HV safety switch. Switches are used in place of the HV interlock as an extra safety feature. For more information on HV safety visit www.cirris.com.

6. **Signature CH+—Enable software support for earth grounded wire instructions:** This option is only available for the CH+ tester.

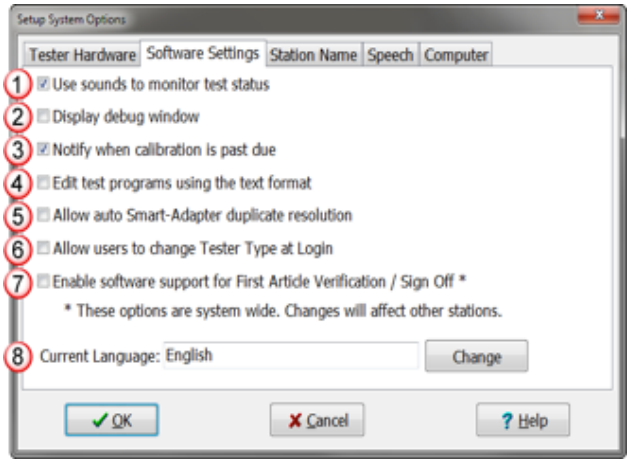
7. **Change Default System Parameters:** Allows you to set new default values or restore factory settings for a low voltage test. For more information on this window, see *page 25*.



10.1.2 Software Settings

Main Menu | Utilities | Setup System Options | Software Settings

The Software Settings menu allows you to personalize settings within the software such as sound, language, etc.



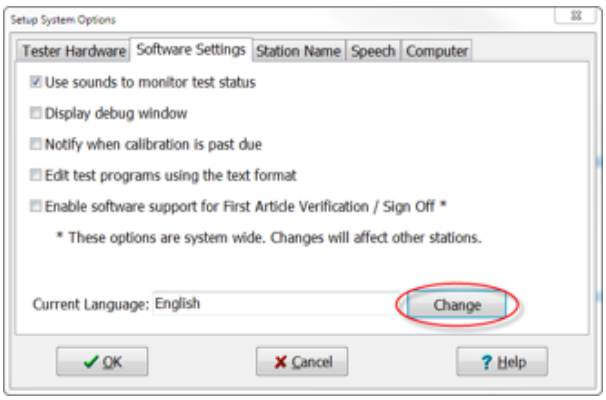
1. **Use sounds to monitor test status:** Allows you to specify whether or not sounds are used during the testing.
2. **Display debug window:** Shows information in the Debug window, which displays along with the easy-wire window. Because it can slow your system down, use this option for diagnostic purposes and only when advised to do so by a technical support representative.
3. **Notify when calibration is past due (for CR only):** Warns when the tester is due for calibration. Cirris provides Performance Verification Kits to verify the tester calibration in the field. For more information visit our performance check kit page on www.cirris.com.
4. **Edit test programs using the text format (for CR, CH2, and CH+ only):** When this checkbox is selected, the Test Editor defaults to the Text View mode when opened (see *page 40*). Generally Graphic mode is more reliable and easier to use so this checkbox should remain unselected.
5. **Allow auto Smart-Adapter duplicate resolution:** After completing a good test with Smart-Adapters (see *page 63*), the adapter position is recorded in the easy-wire database. The next time you run the test, the tester will check to see if the adapters are plugged into the same test points. If they are and this option is checked, the software allows the operator to choose whether to skip or to resolve duplicate adapters. If unchecked, the operator is forced to resolve duplicate adapters.
6. **Allow users to change Tester Type at Login:** Selecting this option allows you to choose a tester when logging in to easy-wire.
7. **Enable software support for First Article Verification / Sign Off (for CR, CH2, and CH+ only):** Activates the First Article Verification setting. For more information on First Article Verification, see *page 43* or visit the Online Help System by clicking Help.
8. **Current Language:** easy-wire software supports the following languages: English, French, German, Mandarin (Chinese), Spanish, Turkish, Russian, and Italian.

■ *Changing the Language*

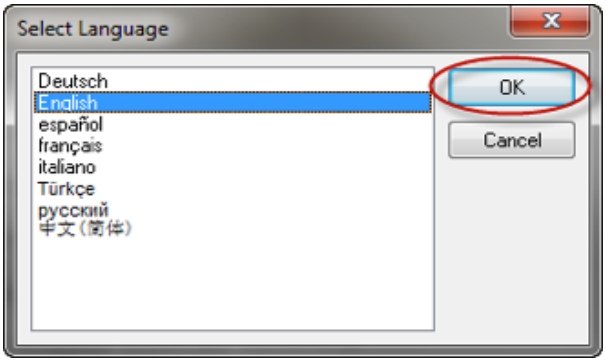
Main Menu | Utilities | Setup System Options | Software Settings | Change

Cirris offers several language choices in easy-wire software.

1. Next to the Current Language text box, click Change.



2. Select the desired language. When finished click OK.

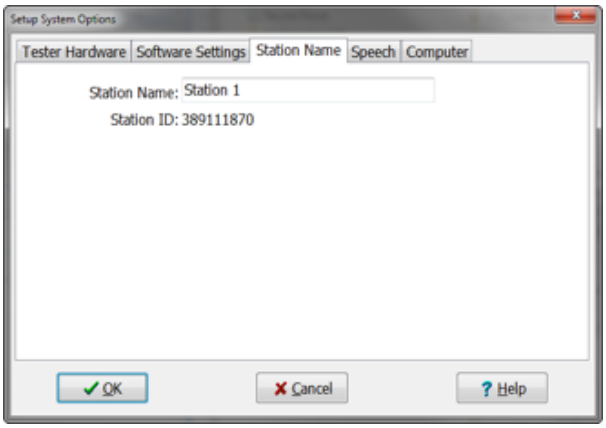


10.1.3 Station Name

Main Menu | Utilities | Setup System Options | Station Name

Edit the Station Name and view the Station ID. When easy-wire is installed, a unique Station ID number is automatically generated and the Station Name defaults to the Station ID number. You can change the Station Name, but not the Station ID. The Station Name can be shown in Test Reports to identify which station performed a certain test.

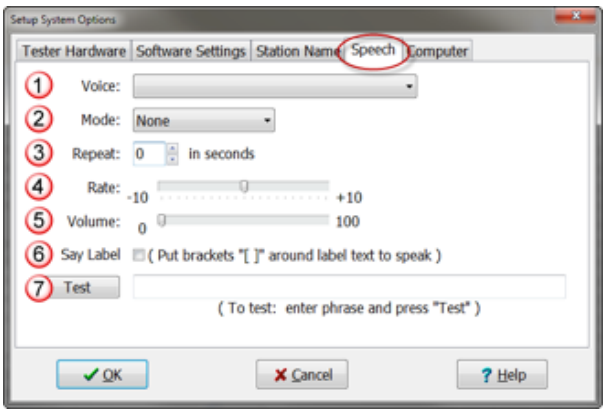
> ***Note:*** *Record the Station ID number so that if you need to replace the test station you can quickly and easily move the station's database file to another easy-wire installation. Contact Technical Support for help with this.*



10.1.4 Speech

Main Menu | Utilities | Setup System Options | Speech

easy-wire's speech output capability allows the test system to recite testing and error information during a test.



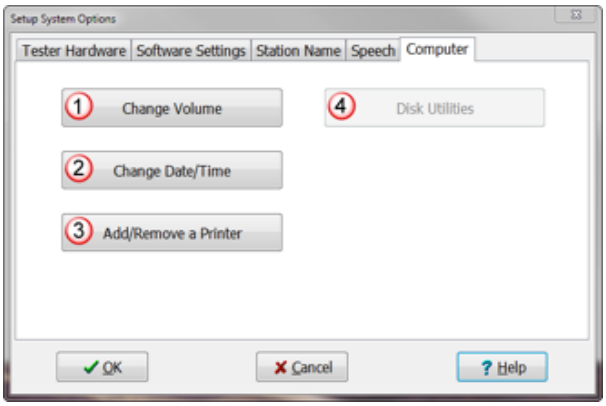
1. **Voice:** Allows you to select from the voice engines installed on your PC.
2. **Mode:** Determines what text will be spoken during testing.
   - **None:** Turns off speech.
   - **Status Message:** The line is spoken in its entirety. For example, "Wire missing J1 pin 4 J2 pin 2."
   - **Connector points:** Only the points involved are spoken. For example, "J1 pin 4 to J2 pin 2."
   - **Destination pin:** Only the destination pin number is spoken. For example, "2". The destination pin mode is commonly used with second-ended pinning.
3. **Repeat:** Determines how often the test system will repeat the spoken output.
4. **Rate:** Specifies how fast words are spoken.

5. **Volume:** Adjusts the volume for spoken words, but does not affect the volume of other sounds in easy-wire.
6. **Say Label:** Text entered into an instructions label field and enclosed in brackets will be recognized by the software as a speech option. See the Help System for more information on how to put brackets on labels.
7. **Test:** Type example text in the field, and click Test to hear how the voice output settings will sound.

10.1.5 Computer

Main Menu | Utilities | Setup System Options | Computer

Change settings on your PC such as time and volume. This allows for quick access to the commonly used computer settings.



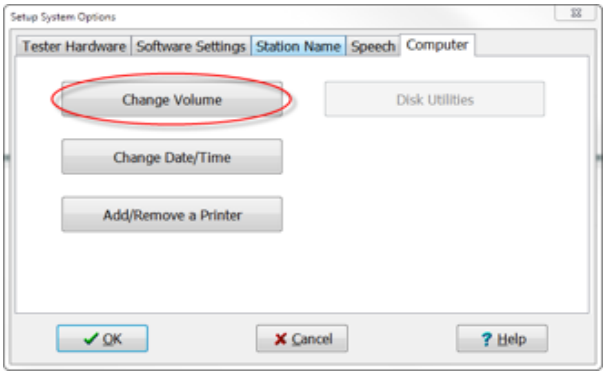
1. **Change Volume:** Adjust the PC's sound volume.
2. **Change Date/Time:** Change the date, time, and time zone of your PC.
3. **Add/Remove a Printer:** Select a default printer, add a new printer, or remove a printer.
4. **Disk Utilities:** Opens Windows Explorer. This option is only available to select users with passwords.

■ *Changing the Volume*

Main Menu | Utilities | Setup System Options | Computer | Change Volume

Control the level of volume for your computer and sounds in easy-wire.

1. Click Change Volume.



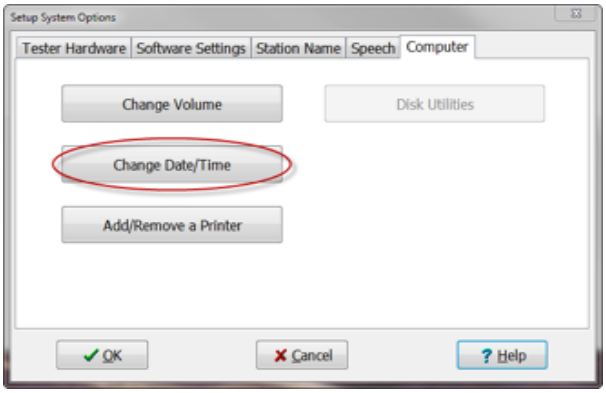
2. Adjust the System Volume and click Test to hear the volume level. When the volume is at the desired level, click Done.

   Check or uncheck Mute to turn sound on or off.

■ *Change Date and Time*

Main Menu | Utilities | Setup System Options | Computer | Change Date/Time

Adjust the date and time on your PC to fit your location. Click Apply and OK when finished.

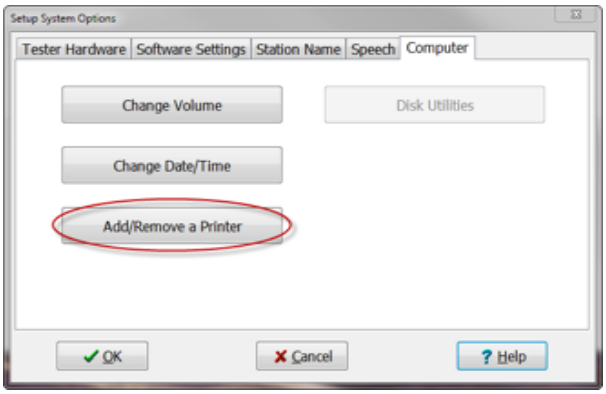


■ *Add/Remove Printer*

Main Menu | Utilities | Setup System Options | Computer | Add/Remove a Printer

Click Add/Remove a Printer. Browse to available printers on your PC where you may change printer settings, and add or remove printers. You may also select the printer you would like to use as the system default for reports.

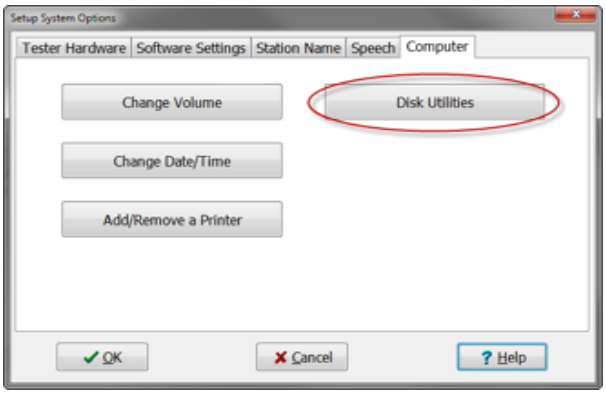
Note: *For more information on printing reports, see page 61.*



■ *Disk Utilities*

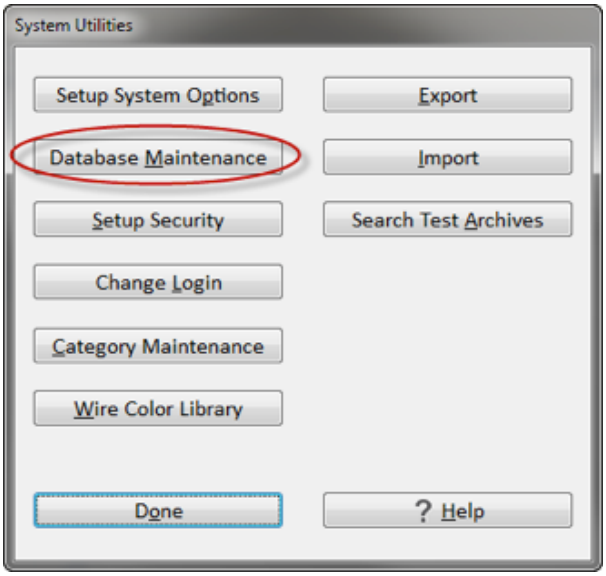
Main Menu | Utilities | Setup System Options | Computer | Disk Utilities

Although this feature will function on other testers, its purpose is to open Windows Explorer on the Easy Touch. Access to this feature is granted to users with a password and access to the Utilities menu.



10.2 Database Maintenance

To maintain database integrity, always keep multiple backups of your database backed up and maintained. Should something happen to your system, your backups will allow you to restore your database and return your system return your system to the last backup state.

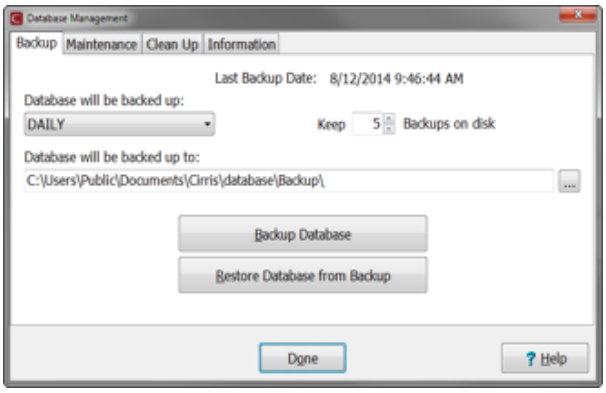


10.2.1 Backup

Main Menu | Utilities | Database Maintenance | Backup

Back up the database on demand, manage the backup schedule, change the number of maintained backups, and change backup location. Backups can be restored in case of database problems or mistakes.

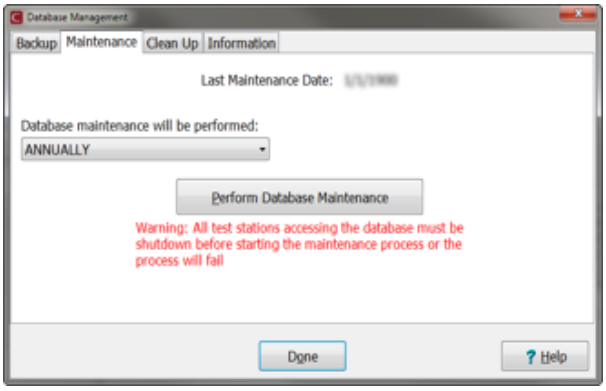
Be aware of backups stored on your local hard drive. Should the hard drive crash, the backups will be lost.



10.2.2 Maintenance

Main Menu | Utilities | Database Maintenance | Maintenance

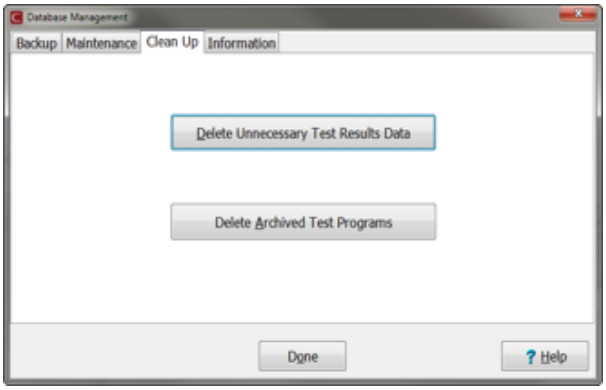
Maintenance cleans and compresses your database which can help to prevent errors. Set how often you would like the software to perform maintenance on your database, or perform maintenance on demand.



10.2.3 Clean Up

Main Menu | Utilities | Database Maintenance | Clean Up

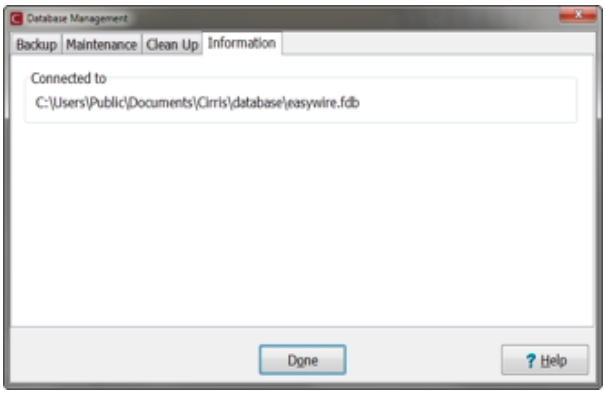
Delete unnecessary test results and/or archived test programs.



10.2.4 Information

Main Menu | Utilities | Database Maintenance | Information

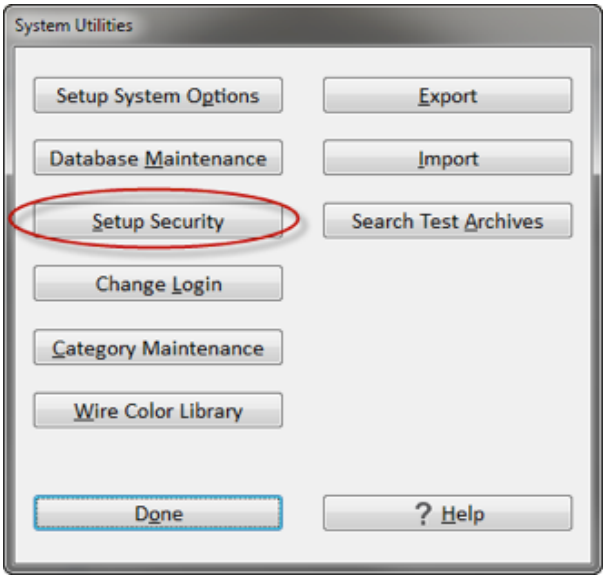
Displays the path to the easy-wire database (easy-wire.fdb). This path was defined by the software when easy-wire was installed. This information may be needed if contacting support.



10.3 Setup Security

Main Menu | Utilities | Setup Security

Secure your database by creating user logins and passwords, and granting or limiting access for each user. Access this option by clicking Setup Security in the Utilities menu.

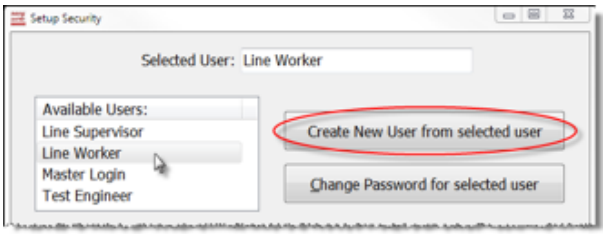


10.3.1 Create New User

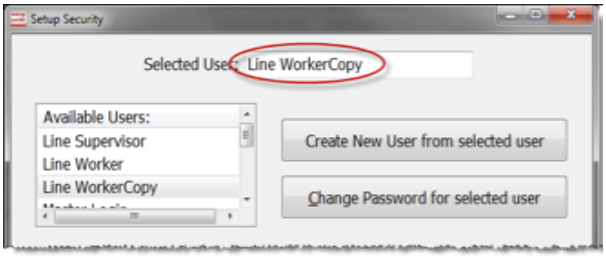
Main Menu | Utilities | Setup Security | Create New User from selected user

The software comes with several predefined user options. New users can be created by copying one of these users.

1. Select an existing user from the list of Available Users. Click Create New User from selected user. A new user will be created with the same privileges as the selected existing user.



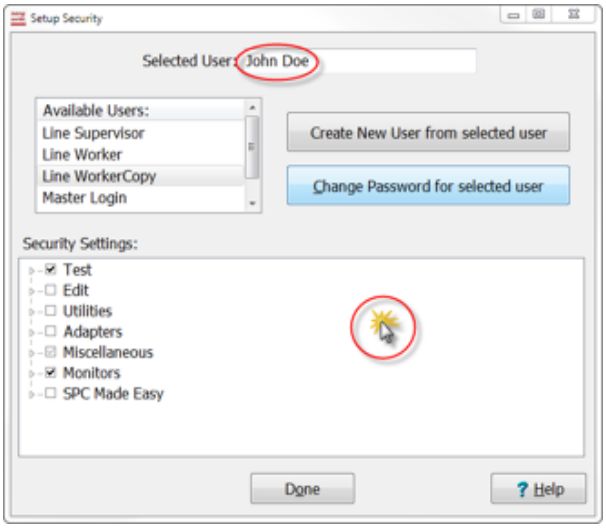
2. The user name, followed by the word Copy, will appear in the Selected User text box.



3. Rename the user in the Selected User text box, then click anywhere in the Security Settings panel to update the new user.

   Click Done to save changes and return to the Utilities menu.

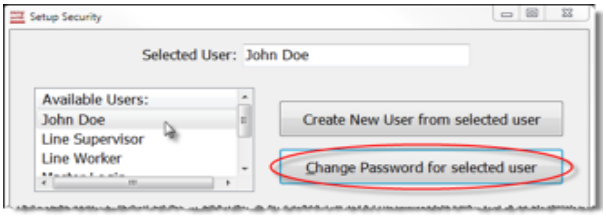
   Note: *To delete a user, right-click the user in the Available Users list and click Delete.*



10.3.2 Change Password

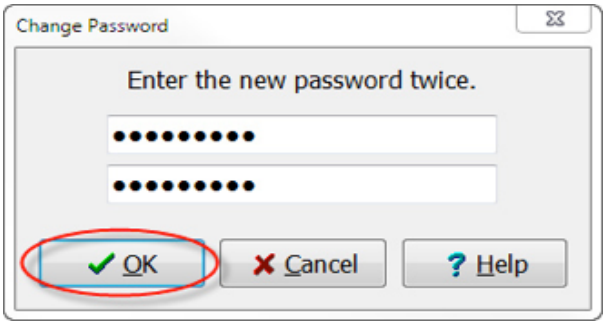
Main Menu | Utilities | Setup Security | Change Password for selected user

1. Select the user name and click Change Password for selected user.



2. Enter the same password into both text boxes and click OK. Click Done to save changes and return to the Utilities menu.

   Note: *Contact Cirris for assistance with forgotten passwords.*



10.3.3 Edit Security Settings

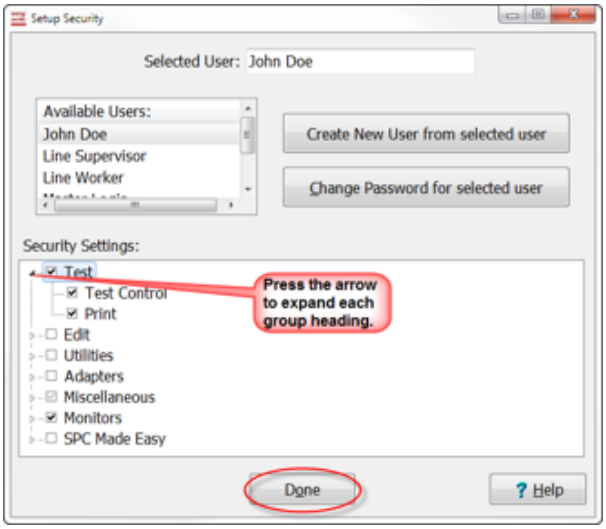
Main Menu | Utilities | Setup Security | Security Settings

Customize the access users have to functions in easy-wire by changing the security settings.

Check the boxes to turn the settings on or off. Settings for Master Login cannot be changed.

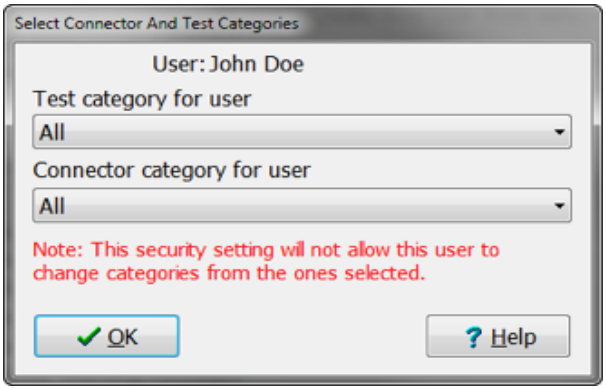
Click Done to save changes and return to the Utilities menu.

Security Setting options controls the selected user's access to the following:



- **Test**
  - Test Control – Perform a test.
  - Print – Allows printing of test reports.
- **Edit**
  - Learn – Connector Registry, Create Test Program, and the Edit window, though options inside these menus are limited.
  - Interfacing – Connector Registry, also options available in the Edit window.
  - Test Control – Allows user set test defaults from the Edit window.
  - Instructions – Allows user to reorder, delete, and add to instructions list.
  - Reports – Modify Report Configuration.
  - Inputs & Outputs – Enable Digital I/O, PLC control, and windows messaging. These options help to create a secure environment for the user during testing. For more information on these options see the Help System or visit www.cirris.com and search for digital I/O.
- **Utilities**
  - System and Security Options – Database Maintenance, Setup Security, and Category Maintenance.
  - Import & Export – Export and Import options.
  - Reports – Search Test Archives.
  - Wire Colors – Wire Color Library.

- **Adapters**
  - Create – Create, edit, and delete adapters, including easy-wire adapters.
  - Verify – Verify and adapters, including easy-wire adapters.
- **Miscellaneous**
  - Leave Windows Running on Exit – Exit easy-wire without shutting off computer. Not selecting this option will cause your PC to automatically shut down when exiting easy-wire.
  - Change Test Categories –Access test categories. Also, the selected user can be limited to accessing a single category by double-clicking on the checkbox to bring up category options. Select the test category the user CAN access, then click OK.
  - Display Warning Messages – Displays a warning message in the Edit window.



- **Monitors:** Controls information displayed on the Monitors tab in the Test window. See *page 50*.
- **SPC Made Easy:** SPC Data Collection is Cirris Software that allows users to format, print, and extrapolate test data using third party SPC data processing programs. Contact your Cirris Representative for more information.

10.4 Change Login

Main Menu | Utilities | Change Login

If each operator on your production floor has a unique user login and password, you can grant and/or restrict each user's access, and track collected test data down to the individual operator. (To creat new users, see *page 79*)

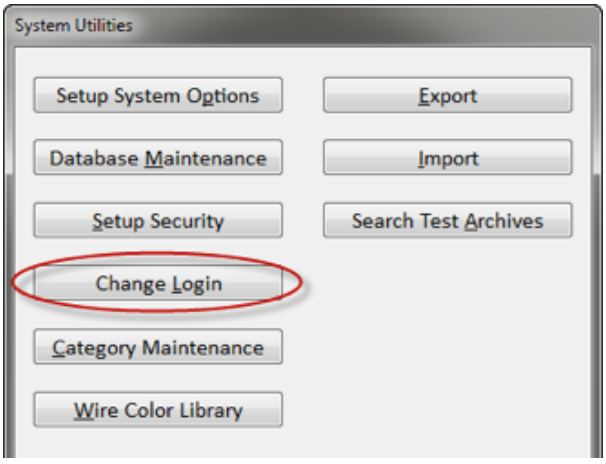
Cirris easy-wire software includes four pre-defined users:

- Master Login
- Test Engineer
- Line Supervisor
- Line Worker

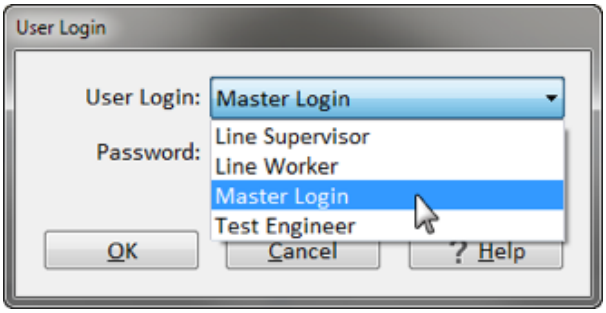
The User Login window opens when the easy-wire software starts. You can select a user from the drop-down list.

Change Login allows you to change users without having to restart easy-wire. To change the active user:

1. From the System Utilities menu, click Change Login.

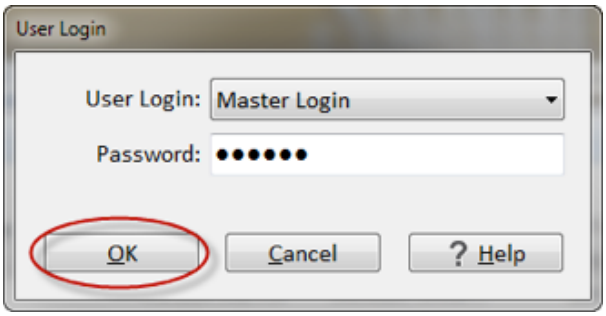


2. Select the desired login name from the dropdown list.



3. Type the password if you have one.

4. Click OK to return to the Utilities menu.



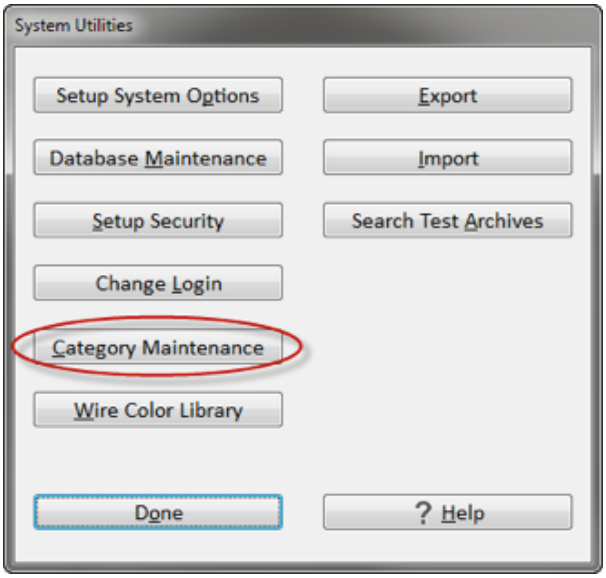
10.5 Category Maintenance

Main Menu | Utilities | Category Maintenance

Organize categories for your test programs and connectors.

The easy-wire software includes four pre-defined categories:

- <Default>
- Cirris Standard
- Demo Tests
- Military

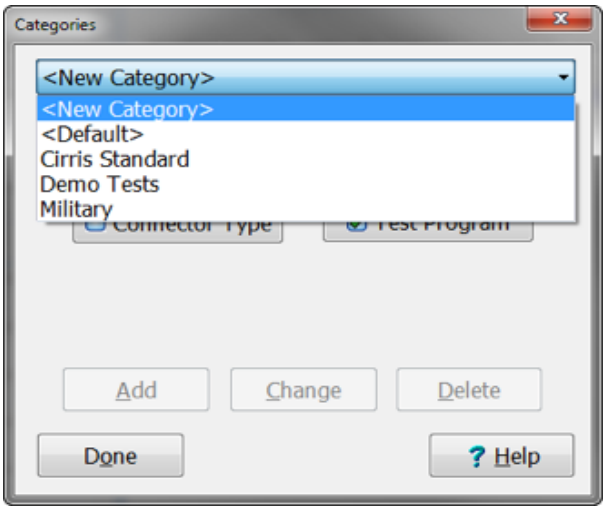


10.5.1 Create New Category

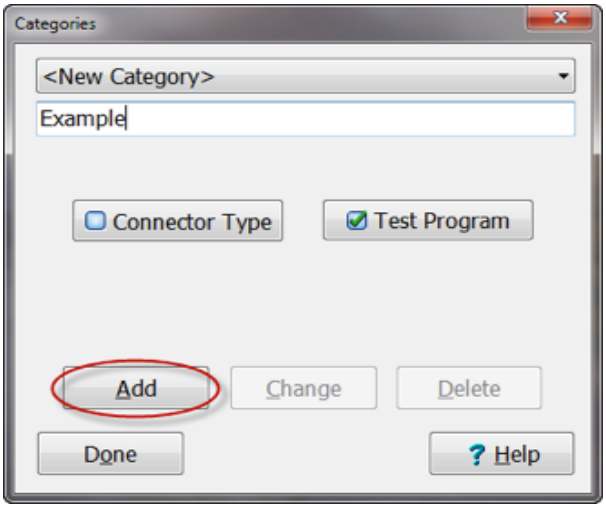
Main Menu | Utilities | Category Maintenance

Create new categories to organize test programs and connectors.

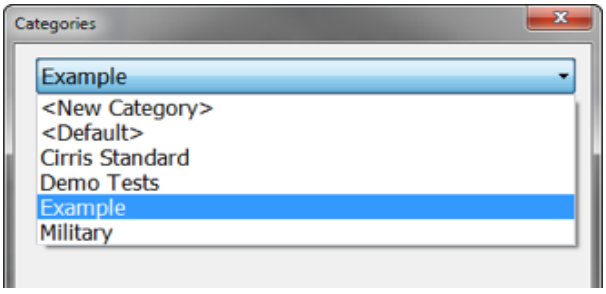
1. After selecting Category Maintenance from the Utilities System menu, select <New Category> from the dropdown list.



2. Type the Name of the new category in the box. Check a box to decide if this category is for connectors, test programs, or both, and click Add.



3. The new category will now appear in the dropdown list. You will now be able to use this category to organize test programs and/or connectors.



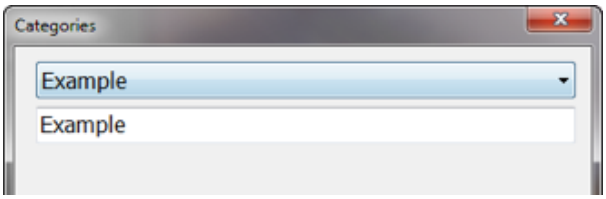
4. Click Done when finished.

10.5.2 Change a Category

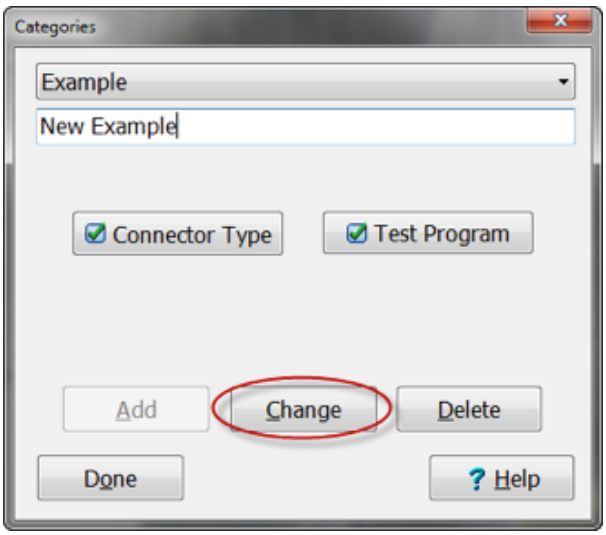
Main Menu | Utilities | Category Maintenance

A category can be used to organize connectors, test programs, or both. The Change Category option allows you to edit the category name and change whether the category will be used for connectors, test programs, and/or both.

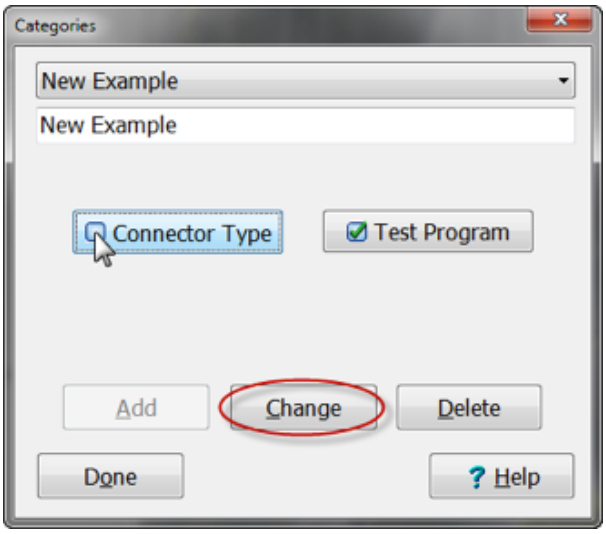
1. Select the category in need of change.



2. To rename a category, retype the name in the box and click Change.



3. To select or change if this category will be used for connectors or test programs, click the box next to either Connector Type and/or Test Program. Then click Change.

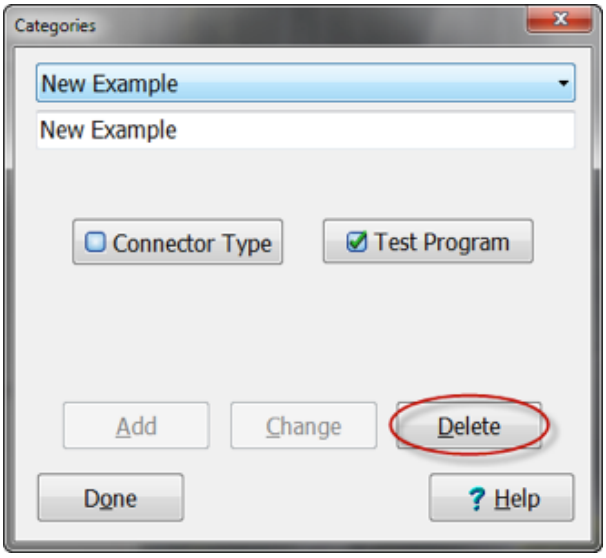


4. Click Done when finished.

10.5.3 Delete a Category

Main Menu | Utilities | Category Maintenance

1. To delete a category, select a category from the dropdown and click Delete.



2. Click Done when finished.

10.6 Wire Color Library

Main Menu | Utilities | Wire Color Library

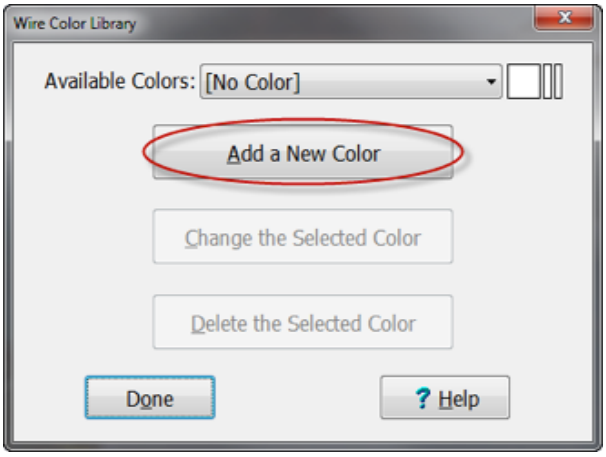
The Wire Color Library allows you to manage colors used to identify wires in test instructions. The wire colors are displayed during a test to help guide operators when building or troubleshooting assemblies.

10.6.1 Add New Wire Color

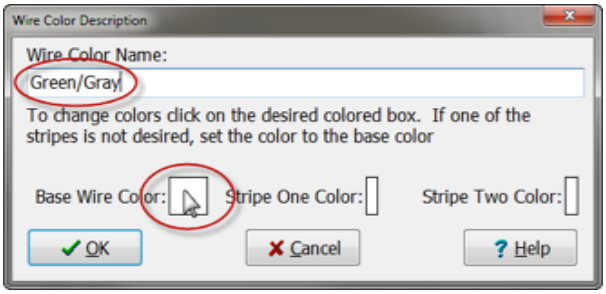
Main Menu | Utilities | Wire Color Library

You can add up to three colors per wire to help with identification.

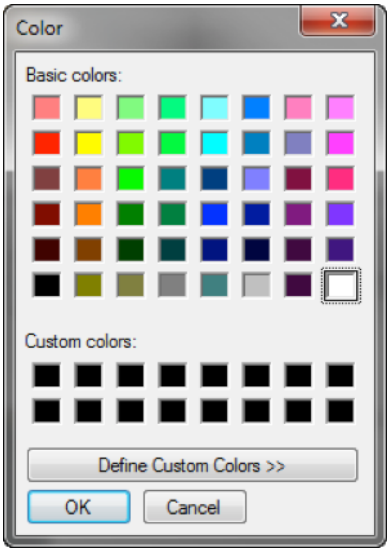
1. In the Wire Color Library, click Add a New Color to create a new wire color.



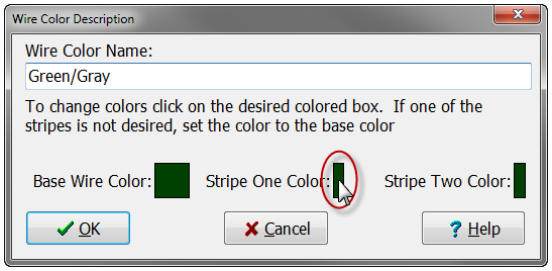
2. In the Wire Color Description window, type the color(s) of your wire in the Wire Color Name box. Then click the box next to Base Wire Color.



3. Select the color most closely matching your wire.



4. If your wire is multi-colored, click the box next to Stripe One Color and select a color as instructed in step 4. You may chose up to three colors per wire.

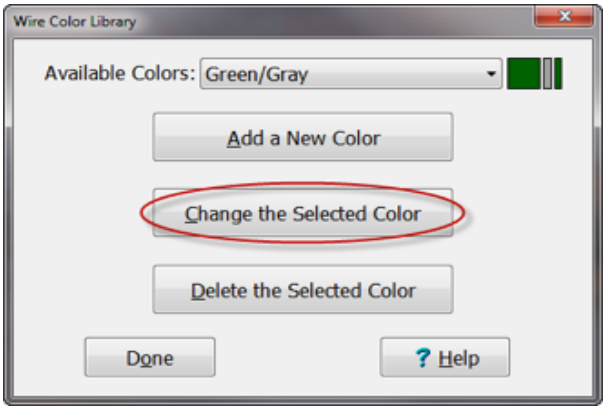


5. When finished click OK.

10.6.2 Change Wire Color

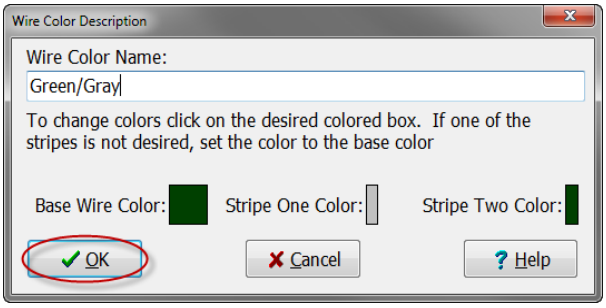
Main Menu | Utilities | Wire Color Library

1. Select a color from the Available Colors dropdown list and click Change the Selected Color.



2. You may now edit the wire color, but not the name. To edit the name, you must create a new wire color. For instruction on creating a new wire color, see *page 85*.

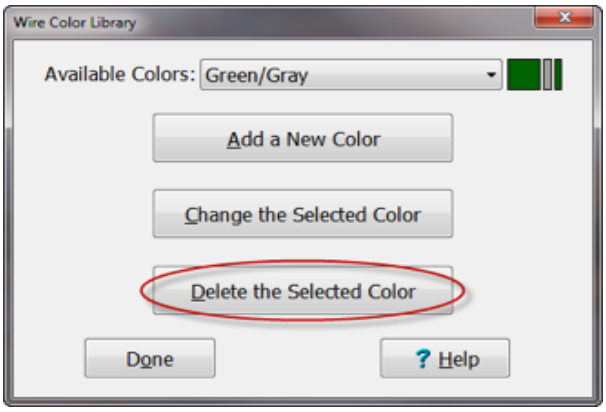
3. When finished click OK.



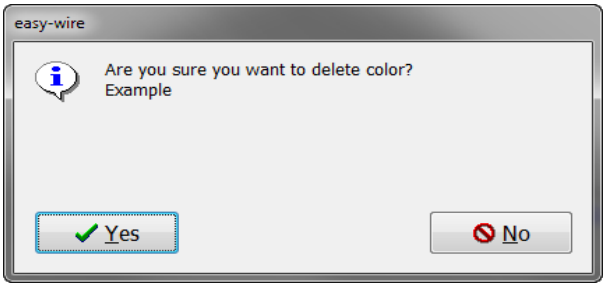
10.6.3 Delete Wire Color

Main Menu | Utilities | Wire Color Library

1. Select a color from the Available Colors dropdown list and click Delete the Selected Color.



2. If you are sure you have selected the right color, click Yes.



3. The color will no longer appear in the Available Colors dropdown list and all wire instructions assigned that color before will now have no color assigned.

10.7 Export/Import

Main Menu | Utilities | Export – Main Menu | Utilities | Import

You may export your test programs as text files in order to share test programs, create templates, or save backup copies.

You may import all or parts of your test programs as text files. These text files can be created by exporting existing tests with a text editor, or exporting from a spreadsheet.

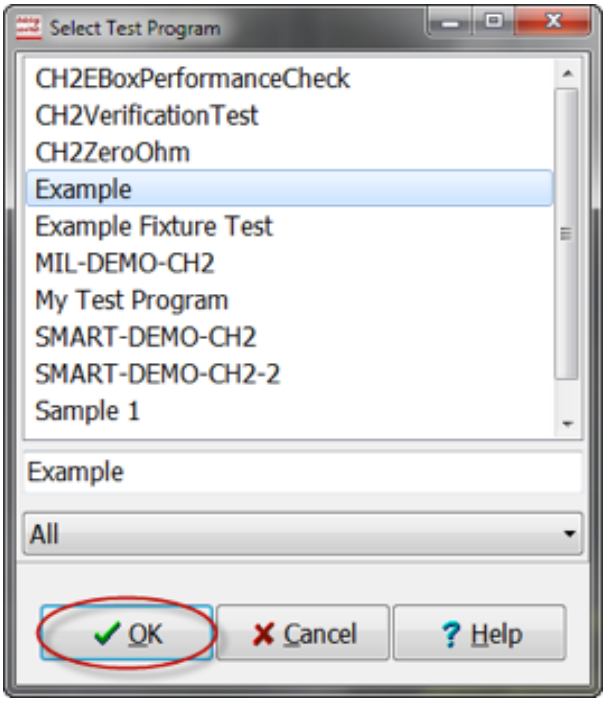
10.7.1 Export

Main Menu | Utilities | Export

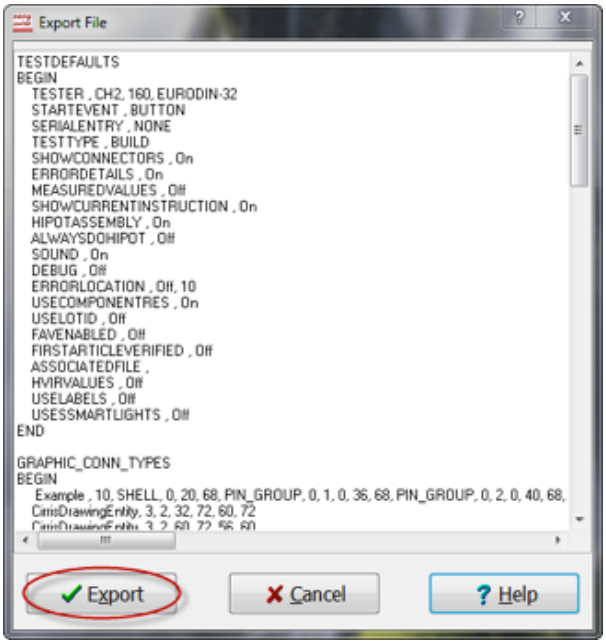
Export test programs into text files for sharing, saving, or creating templates.

1. Find a test by typing the name into the box below the list. Select the test(s) you wish to export. Click OK.

   Note: *Be sure you have the right category selected from the dropdown list.*



2. In the Export File window, click Export.



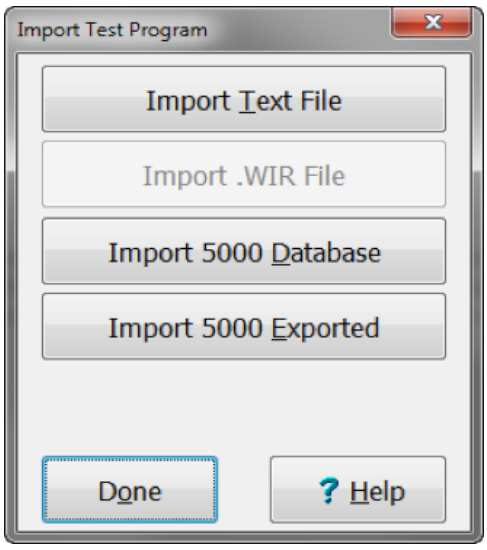
3. Choose the file name for the exported test program and click Save.

10.7.2 Import

Main Menu | Utilities | Import

Exported test programs can be imported into easy-wire from text files. This allows tests to be moved from one station to another when a networked database is not being used.

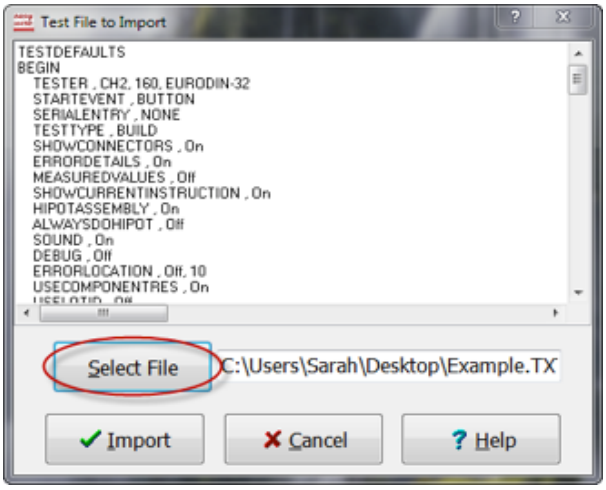
> ***Note:*** *The Import .WIR File is only an option for Easy Touch. The Import 5000 Database and Import 5000 Exported are options created for the CR+ and are not necessary for other testers even if available. For more information on these import options, see the Help System.*



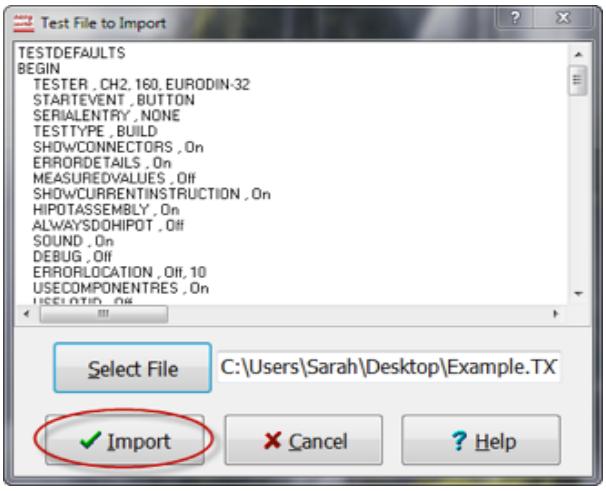
1. Click Import Text File from the Import Test Program menu.

2. Select the test files you wish to import and click Open.

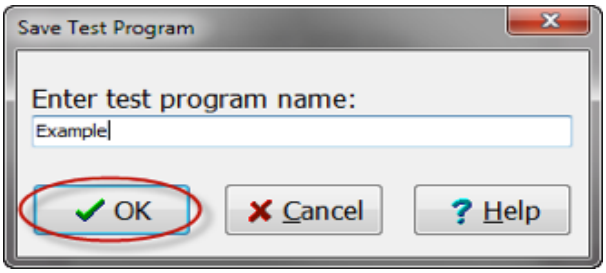
3. If you have opened the wrong test file, click Select File to choose a different test file.



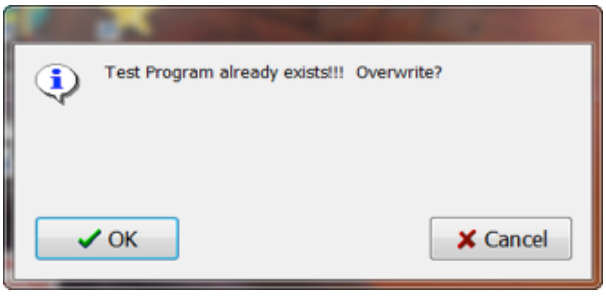
4. Once you determine you have selected the correct test program, click Import.



5. Enter a name for the test program and click OK.



6. If a test program already has the same name, you will be given the option to overwrite it or cancel and choose a different name.



7. After creating a name, the test program will be imported to the test program list and you will return to the Import menu.

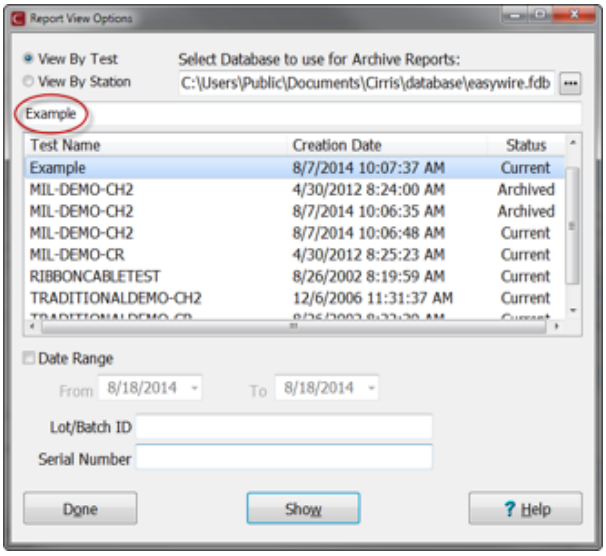
10.8 Search Test Archives

Main Menu | Utilities | Search Test Archives

Use Search Test Archives to locate saved test programs and reports.

1. Select the appropriate options to view the list of archived reports by test or by station.

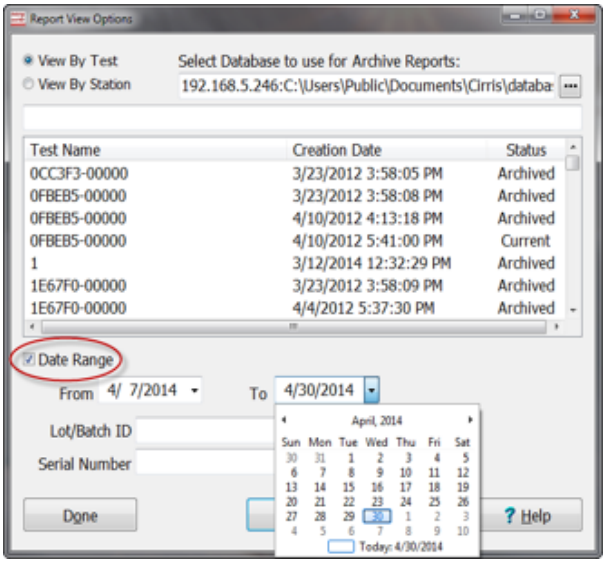
2. Type the name of the test into the space provided and the test program will be automatically highlighted in the Test Name list.



3. Select the test and click Show, click Enter, or double click on the test program.

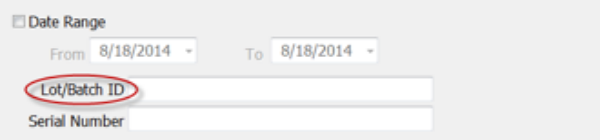
4. To search for a test program report by date, select Date Range and fill in the date(s) corresponding to your test. You may also click the down arrows next to the dates to view a calendar. When you have selected the appropriate dates, click Show.

   Note: *Be sure to un-select Date Range when searching for a different test or changing search parameters.*



5. To search using the Lot/Batch ID numbers or Serial Numbers, type the number into the appropriate field and click Show.

   Note: *This search will only work if the ID number has been enabled for the test program in the Test Program Editor (see page 28).*



10.8.3 Test Archive Reports

Test Archives Reports are reports opened from the Search Archived Reports menu. For more information on Test Archive Reports and other reports, see *page 57*.

You can open a Run Report, Test Report, and Connector Wiring Detail Report from a Test Archive Report.

1. Open a Test Archive Report (see above).
2. Double-click on the row of the desired run to open a Run Report.
3. In the Run Report, double-click on the desired row to open a Test Report or Wiring Detail Report.

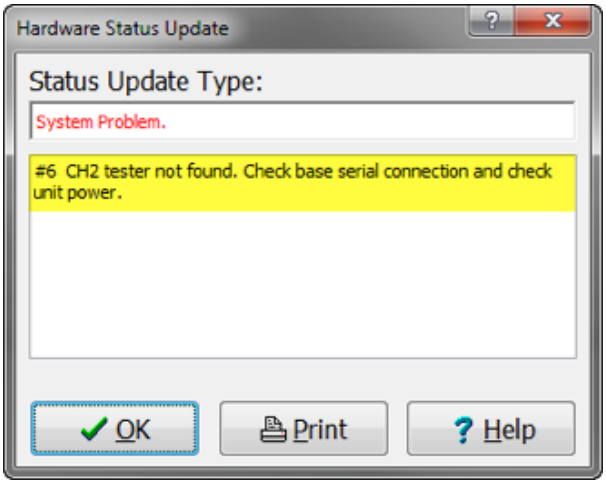
11. Troubleshooting

Visit www.cirris.com/learning-center for articles on many troubleshooting problems. If you need further help, contact Cirris Technical Support by emailing techsupport@cirris.com or calling 1-800-441-9910.

11.1 Tester Not Found

Occasionally when starting easy-wire, you will receive a Hardware Status Update reading tester not found. This could be caused by:

- The tester is not attached properly. Check all connections between the PC and tester. Make sure all cords are connected securely.
- The tester is not turned on. Make sure the on/off switch is in the correct position. For further help, check your tester's "Getting Started Guide".



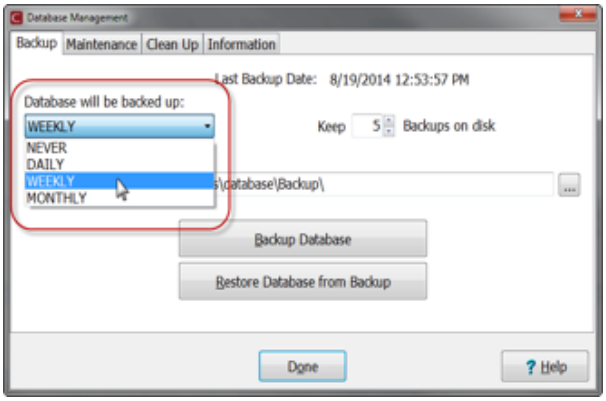
11.2 "Copying Files" message on start up

If the Copying Files progress bar appears on your screen, automatic database backup is turned on.

You can turn automatic backup on/off as well as set the time interval between automatic backups so they occur when you want them.

- From the Main Menu, click Utilities.
- Click Database Maintenance.
- In the Backup tab, adjust the settings to your preferences.

You can also do a manual backup on demand independent of automatic settings. For more information, see *page 77*.



11.3 Menu buttons are disabled

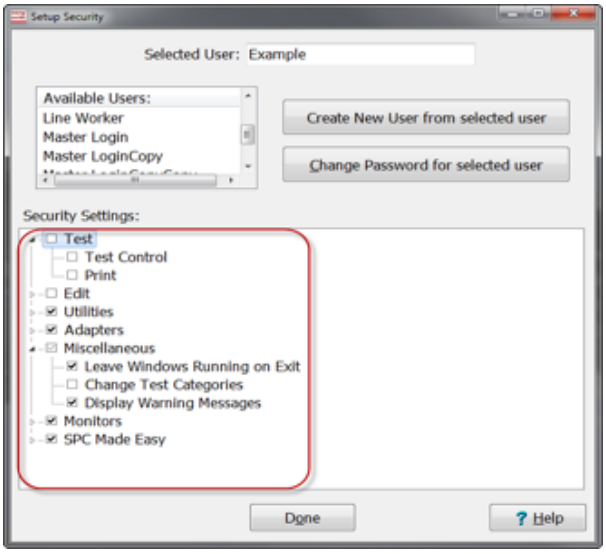
Buttons can be disabled if:

- The test assemblies or test programs are being edited on another network station.
- No tester is attached to the PC or the tester is not powered on.
- Serial cable is faulty.

- The tester is not receiving power.
- Security Settings are disabled.

To change which buttons are enabled and disabled in the Security Settings:

1. From the easy-wire Main Menu, click Utilities.
2. Click Setup Security.
3. Check the boxes in the Security Settings window to grant permission for the user to access areas that are disabled (see *page 80*).



11.4 No Sound

The easy-wire software can use sound prompts to provide feedback to the operator. If the test computer is not making sound:

- **Check the speakers:** Make sure the speakers are connected to the computer, plugged into power, and that the volume is turned up. Disconnect any headphones from the speaker. If there is no sound after trying the other steps below, try the speakers on another known good system to make sure they work.
- **Check the Windows volume control:** On the Windows desktop taskbar, click the Volume icon. Make sure the volume is turned up and that the Mute checkbox is not selected.
- **Check the easy-wire sound option:** The easy-wire software contains a control for turning sound off when it is not desired. To make sure sound control is turned ON:

  1. From the easy-wire Main Menu, click Utilities.
  2. Click Setup System Options.
  3. Click the Software Settings tab, and make sure there is a check in the Use sounds to monitor test status check box.

11.5 Sending z_easywire.txt

The purpose of the z_easywire.txt file is to help Cirris Technical Support diagnose problems with hardware, software, or the database. If you press the F3 key on the computer keyboard when you are in the Test window, data about the test setup will be written to the z_easywire.txt file.

The z_easywire.txt file contains date/time-stamped entries about

- system status
- easy-wire errors
- tester hardware errors
- database access successes and failures.

As the file grows in size with use of the tester, new z_easywire.txt file(s) will be created (z1_easywire.txt, z2_easywire.txt, etc.). Contact Cirris Technical Support for help sending the file to Cirris for troubleshooting.

File location:

- For Win 7 – C:\Users\Public\Documents\Cirris\Common
- For XP – C:\Documents and Settings\All Users\Documents\Cirris\Common

12. Miscellaneous

12.1 Registering Optional Software Features

You can register optional easy-wire software features using the easy-wire Feature Registration Utility.

> ***Note:*** *These features are activated by feature registration codes that must be obtained through Cirris. Some features may require a fee.*

12.1.1 Feature Registration Utility

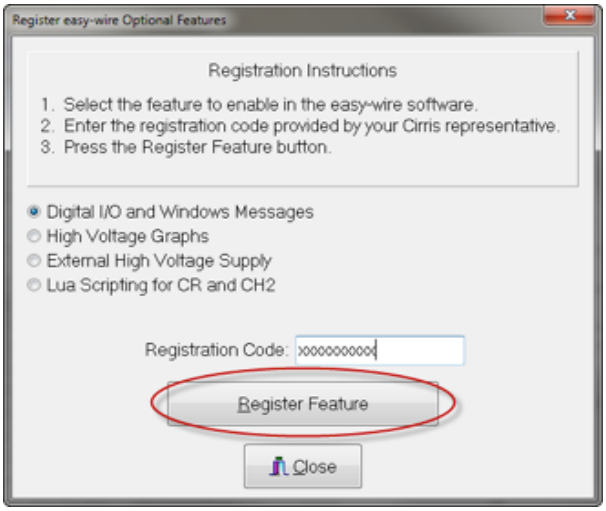
1. Exit easy-wire.

2. 2. On the Windows desktop, click the Windows Start button, All Programs, Cirris Systems Corporation, easy-wire, Feature Registration Utility.

   If you still cannot locate the Feature Registration Utility, you can also search to find it.

3. Select the feature you wish to register and contact a Cirris Sales Representative at 1-800-441-9910 to request a feature registration code.

4. In the Feature Registration window, select the feature that you are registering, type the code into the Registration Code box, and click Register Feature. If a valid code has been entered, a window will open showing the feature installed properly.



12.1.2 Optional Software Features

Optional features that can be purchased to enhance the tester's capability:

- **Digital I/O and Windows Messages :** Cirris easy-wire uses digital I/O and Windows Messages to communicate outside the software.
  - Digital I/O allows machines to send signals to and from the test system in the form of light towers, buzzers, palm switches, physical buttons, and more. For more information on Digital I/O, click Help or visit www.cirris.com and search for digital I/O.
  - Windows Messages is a basic windows program communication protocol. Each step of an executed test gener-

ates a windows message which other programs can listen for. These other applications can also send messages to easy-wire to execute functions within their tests.

- **High Voltage Graphs:** Enabling high voltage graphing will provide the user with visual graphs of the hipot portion of a test. These graphs provide information similar to an Oscilloscope including,
  - ramp up
  - ramp down
  - testing phases
  - errors caught in real time

Once this feature is registered, see *page 72* to activate HV graphs inside the software.

HV graphs indicate nets, including providing hipot status at the top of each window so the user can know exactly which net is currently being tested.

Graphs can also be exported and sent to Cirris Tech Support for troubleshooting high voltage related failures.

- **External High Voltage Supply:** This feature is automatically enabled when using an xHV Power Supply. You can still activate this feature manually if you are programming tests on a cupmuter that is not hooked up to an xHV power supply. See www.cirris.com for more information on xHV Power Supply.
- **LUA Scripting for CR and CH2:** Scripting allows you to customize test programs to perform functions that are not possible using the standard test editor window. Scripts can be used for a variety of functions:
  - collecting custom data
  - exporting data into other formats in real time
  - testing complex components with a high rate of variability
  - parent/child wirelists.

See our LUA Scripting page on www.cirris.com for more information.

12.2 HV Interlock (CH2 only)

An HV interlock or safety interlock is a safety device that is meant to prevent an operator from accidental shock. If desired, you can buy an interlock from Cirris or build an Interlock for the CH2 to guard against accidentally coming in contact with high voltage.

> ***Note:*** *If you are using a CH2 xHV Power Supply, in order to operate it at high voltage, you must build or purchase an interlock for the xHV Power Supply to ensure operator safety. For more information on the CH2 xHV Power Supply, visit our CH2 xHV page on www.cirris.com or use the Help System.*

Interlocks can include devices such as

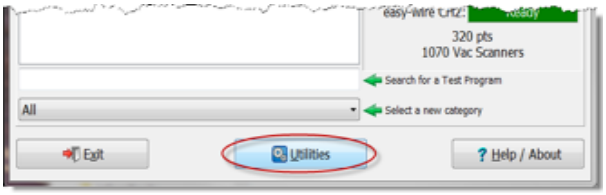
- dual palm switches that must be simultaneously pressed
- a non-conductive cover that must be closed over the device-under-test (thereby activating a switch)
- a light curtain

If an operator attempts to do a high voltage test without the interlock activated, the system displays Engage HV Safety Switch to start high voltage testing in the Test window.

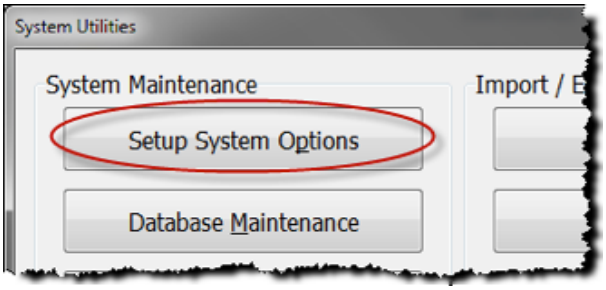
12.2.1 Enabling HV Safety Switch

When using an interlock, we strongly suggest you enable the system option Require OPEN/CLOSE of HV safety switch for each hipot test. Enabling this option ensures that the operator doesn't tamper with (or continuously short) the switch connection of safety switches and thereby override the interlock safety feature.

1. From the easy-wire main menu, click Utilities.

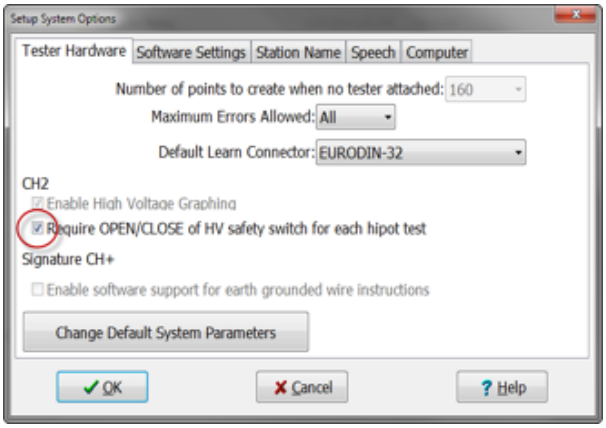


2. Click Setup System Options.



3. In the Tester Hardware tab, Check the box for Require OPEN/CLOSE of HV safety switch for each hipot test. Then click OK.

Note: *For information on strategies when making a safety interlock for high voltage testing, see the Help System. For more information on hipot safety, visit www.cirris.com and search for hipot safety.*



12.2.2 Build an HV Safety Switch for the CH2

For the tester to perform high voltage testing, the interlock must provide a connection between pins 6 and 25 of the CH2 I/O connector. To learn how to build an interlock, see the Help System.

Note: *The Interlocks are different for the CH2 tester and the xHV Power Supply. For information when building interlocks for each device, see the Help System or contact Tech Support.*

12.2.3 HV Interlock Override

If you are not using an interlock or an HV safety switch on the CH2 then you must use the HV Interlock Override for the CH2 tester to perform high voltage testing (Included with your CH2 tester).

The HV Interlock Override connects to the CH2 Digital I/O port making a connection between pins 6 and 25 on the port, mimicking a safety switch.

> ***Note:*** *If you decide you will never use the HV Interlock Override, remove the wired connection in the HV Interlock Override and use the override connector (25 pin Male D-Sub) and connector housing to adapt to your interlock device.*

Appendix 1

A1.1 Supported Auto-generated Connectors

Circular Series	Part number starts with:
BACC45 (Boeing that crosses to MIL standards)	BACC45...
BACC63 (Boeing that crosses to MIL standards)	BACC63...
EN3646 (European that crosses to MIL standards)	EN3646...
MIL-DTL-26482 Series 1 & 2	M347…
MIL-DTL-26500	M2426…, M2761…
MIL-DTL-38300 (Part of 26500)	M2426...
MIL-DTL-38999 Series I,II,III&IV	MS27…, D38999…,
MIL-DTL-5015 3400 Series Front Release	MS340…
MIL-DTL-5015 3450 Series Rear Release	MS345…
MIL-DTL-83723 Series III	M83723/61 and higher

Rectangular D-subminature Series	Part number starts with:
Generic D-subs (Standard, High Density, Double Density)	D <shell size> <Pins> <Gender PSMF> as in DB25P, DB-25P, DB-25-P, DB-25M, DB-25-M, DE-9S but not DB-9S
Generic combo D	D as D13W3P in the form of D <combo insert arrangement> <with or without a "-" followed by gender PSMF>
EN3646 (European that crosses to MIL standards)	D <shell size> ignored letters <# of pins> <gender PSMF>
MIL-DTL-24308	M24308/… (recognizes slash listings for /02, /04, /06, and /08)
NASA 311 (GSFC Standard, high densiity, and Combo D)	311P40…
Cinch D*U Series	D<Shell size> U <pins> <gender P/S>
Cinch D*U Series	D<Shell size> U <pins> <gender P/S>
ITT Cannon D-Subminatures	D*MAMM, D*MAMT, D*MAMY, D*MAMF, D*MAMFT, D*MAM, D*MAMR, D*MAMYT, D*U, D*A, D*AE where * represents the shell size
ITT Cannon Double Denisty D-Subminatures	DR2D and 2D
Positronics Standard, High Density and Combo D	SD, SND, RD, ORD, SDD, DD, ODD, CBC, SCBC.
Souriau D-Subminatures	D <Shell size> M or MF <pins> <gender P/S>

Note: *Connectors with crimp/insertable contacts are included but connectors with soldered/fixed contacts are not included. Connectors identified are not necessarily in production. They represent pin arrangement if they do exist in production.*

Important Terms

Add-on Scanners – Scanners that can be added to the tester to increase the point count.

Auxiliary LEDs – When attached to product mating connectors and used in conjunction with the easy-wire software, LEDs provide visual assembly and error queues.

Calibration – Every Cirris tester that leaves our factory is calibrated in compliance with ANSI/NCSL Z540-1-1994 and ISO-10012 to standards traceable to the NIST in the United States. For more information, visit www.cirris.com.

Cirris Connector Generator – A feature that automatically generates information and images for connectors belonging to various circular and D-subminiature series.

Cirris Networking Made Easy Software – Enables stand-alone testers to share tests stored to a network location.

Connectors – The piece of fixturing that mates with the device-under-test.

Database – The location where all of your test programs, test results, users, security settings, and other important information is stored. To maintain database integrity, always keep multiple backups of your database backed up and maintained.

Device-under-test (DUT) – The cable, harness, or other assembly that is being tested by the cable tester. This is referred to by some as the Unit-Under-Test.

Dielectric Withstand (DW) – A high voltage test used to determine that a wire's insulation can withstand a required voltage for a required time. Used to detect large current flows.

Earth Ground Point System (EGPS) – A mechanism for testing devices connected to earth ground.

easy-wire Adapters – Special adapters assembled with a bi-colored LED and a USB connector that plug into an easy-wire transition board. When used with a CR tester, they provide wired mating connectors for your harness board.

Fast Attach Connector – An easy-wire connector that speeds up the process of attaching connectors by allowing you to map a connector's points to the tester's points.

First Article Verification – A feature in easy-wire that requires a supervisor or other authorized user to verify a test before it can pass and be used for production.

Fixturing – The set of wires and connectors that connect the device-under-test to the tester.

Ground Pin – Another name for a pin attached to the shell or housing of a connector.

Hardware Status Update – Appears when powering easy-wire to notify of hardware information or problems.

Help System – A digital guide accessed by pressing the help button in the easy-wire software.

Hipot – Short for high potential (high voltage). In easy-wire, this term is used to mean the collection of high voltage tests (DW, IR, etc).

HV Interlock – A safety device that is meant to prevent an operator from accidental shock. An interlock helps protect operators from high voltage during the high voltage test. For more information on interlocks, see the Help System or visit www.cirris.com.

Insulation Resistance (IR) – An HV test used to determine if a wire's insulation resistance meets the specified threshold. Used to detect small current flows.

Learn – A feature in easy-wire that allows the tester to "learn" connections by scanning a known good device rather than having to create the instructions for them manually. The tester will analyze an attached device and create a test program with instructions for the interconnections that were found.

Master Login – This login gives access to all areas of easy-wire where other logins can be limited for security purposes.

Nets – A group of interconnected points in a cable or harness.

Parent/Child Test – A single parent can contain multiple child test programs that run sequentially to handle dynamic changes to connection patterns while testing. Ex. Switches, relays etc. Multiple test programs can be combined together in a Parent Test.

Pin Count – The number of pins in a connector.

Pin-Sight – A Cirris product that helps accurately insert each wire in the correct cavity of a connector.

Scanners – A set of test points.

Scripting – An optional feature which allows for customized LUA scripts to be executed during a test in order to perform operations not normally available in easy-wire.

Smart-Adapters – A method used to automatically identify wires and connectors for use in a program. Speeds test setup by using Smart-Lights on each fixture.

Splice – Wire junctions in cables and wire harnesses that do not connect to a test point.

Station ID – An automatically generated number used to identify a test station.

Station Name – A name, chosen by the operator, used to identify a test station on reports.

Tare Values – Eliminates reported fixturing resistance, or the resistance that could be removed to meet a specification for maximum resistance in the DUT. The resistance value is subtracted from the wire instruction measurement to compensate for the resistance of the interfacing wires and connectors from the front of the tester to the DUT. The subtraction is user defined.

Test Points – A connection on the tester which may be attached to a DUT connection through fixturing.

Test Program – The set of information defining the tests to be performed on a DUT. This includes information on the connector of the DUT, connections between connector pins (test instructions), test parameters, etc.

Traditional Fixturing – A method used to manually identify the wires and connectors that connect the device-under-test as opposed to Smart-Adapters.

Cirris easy-wire® Software Manual for CH2 & CR Testers
Version 2015.3.0

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