

# USER MANUAL

**autoware™**

**autoware**  
**S7600 / S9100**

*Item 38481*

*Ver 1.01*

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# autoware

This instrument control software was designed to provide you with a quick and easy way to utilize RS232 or GPIB (IEEE-488) when using HypotULTRA®III, LINECHEK™ and RUNCHEK™. It offers you complete control of the instrument setups as well as the ability to capture test results. This manual will provide complete operating instructions. The **HELP SCREENS** within the software offer the same procedures as this manual. Before installing this software, please note the system requirements listed below. Autoware for HypotULTRA®III is provided in two versions. Both versions are included on the CD.

- Autoware S7600 for control of HypotULTRA III models.
- Autoware S9100 for control of a complete system consisting of HypotULTRA III, LINECHEK and RUNCHEK models (Vxxx.015 for 905D with 15Amp capability).

## SYSTEM REQUIREMENTS

- National Instruments GPIB interface card (**Not needed with RS232**)
- GPIB connection cables (**Not needed with RS232**)
- One available serial port (two for Autoware 9100) (**Not needed with GPIB**)
- Microsoft Windows 95/98/2000/NT/XP
- PC with Pentium Processor
- CD-ROM drive
- 32 MB RAM Required, 64 MB Recommended
- 40 MB free disk space on your hard drive

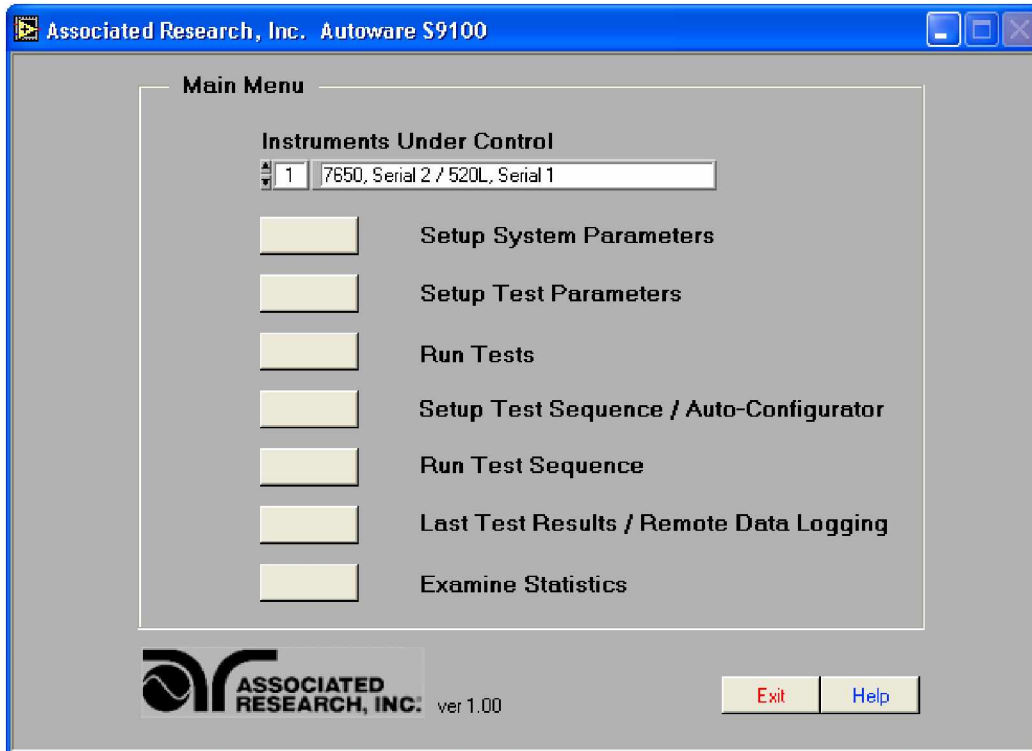
## INSTALLATION PROCEDURE

1. Insert the Autoware compact disk into your CD ROM drive. A Readme.txt file is also available in the root directory of the CD with additional install information.
2. Select the Run command from the Start menu.
3. Click the browse button and select the CD ROM drive, then selected the appropriate Autoware-program subdirectory.
4. Double click or run the program called Setup.exe within the subdirectory.
5. Follow the instructions within the Setup Program window for a complete installation.

**Please note:** The National Instruments Visa driver and runtime engine will automatically be installed on your system during the installation of Autoware. Autoware will not run without these programs.

6. After installation is complete an “Associated Research Autoware” program group will be created with an icon labeled **Autoware (S7600 or S9100)** Click on the icon to run the software.

## MAIN MENU



**Main Menu screen Autoware 9100**

The first option on this screen is titled "Instruments Under Control". Upon startup, the software defaults to configuration number one. There are 99 possible configurations to select, and each one is a programmable setup of different HypotULTRA III and LINECHEK or RUNCHEK models you wish to control. To set up a configuration, use the up/down arrows next to the configuration number to select which number you would like to set up a configuration for. After doing so, you can enter the "Setup System Parameters" screen to select which type of testing configuration you wish to use.

The Main Menu is broken down into 7 Sections on Autoware 9100. Since Autoware 7600 does not include a Test Sequence / Auto-configurator function, it only has 5 sections.

**1). Setup System Parameters:** This screen is used to setup communication between Autoware and the PC. These software configuration screens do not require communication with the actual test instrument(s). The remote control indicators on the instruments may not activate during these setups.

**2). Setup Test Parameters:** This screen is used to setup and store test parameters, as well as recall test setups from existing files. The test sequence for LINECHEK must be manually entered on this screen when using Autoware 9100. For automatic setup of

LINECHEK, go to the "Setup Test Sequence/Auto-Configurator" screen (Only applicable on Autoware 9100).

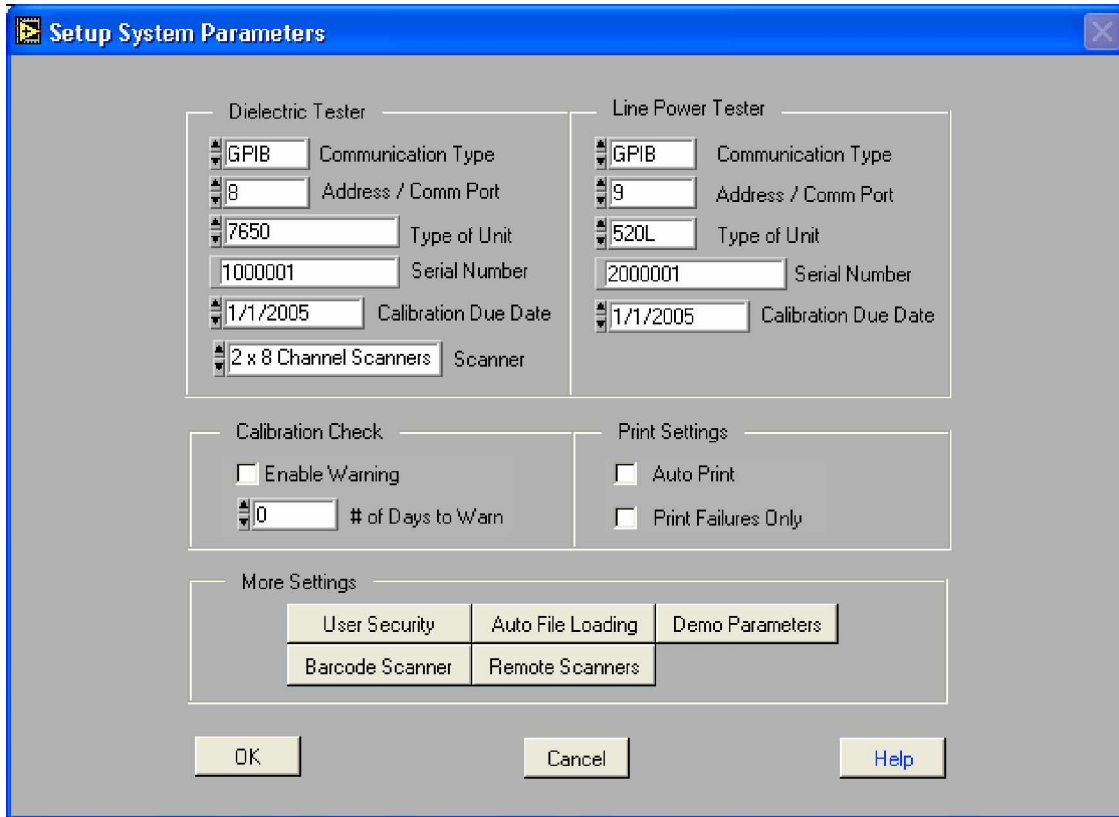
3). **Run Tests:** This screen allows you to initiate and reset tests. It also gives you the ability to turn the "connect" on or off, and use "bar code scanning". This screen is not used in Autoware 9100 when the tests are run through the "Run Test Sequence" screen.

4). **Setup Test Sequence/Auto-Configurator:** This screen is only available on Autoware 9100. Because of the number of steps normally involved in performing a Line Leakage Test, manual setup of the instrument can be a tedious process. An advantage of using the Auto-Configurator function is that the LINECHEK is automatically set up for the most common configuration after you select the safety agency standard that you need to comply with. The user may select from default values by specification number and by test type. The user can also edit default values and save custom test sequences. Safety tests stored to a file may also be accessed for a complete test sequence.

5). **Run Test Sequences:** This screen is only available on Autoware 9100. This screen allows the user to load and execute test sequences that were previously configured for line leakage tests and safety tests.

6). **Last Test Results/Remote Data Logging:** This screen allows you to review actual test results from a single test or up to 16 linked LINECHEK tests, 10 linked RUNCHEK tests, and/or 30 linked HypotULTRA III tests. This screen may also be used for data logging activities either from the PC or remotely.

7). **Examine Statistics:** This screen allows you to see actual test results and graph the results by category.

**SETUP SYSTEM PARAMETERS**

**Setup System Parameters screen Autoware 9100**

The screen shown above is for Autoware 9100, which controls both a Dielectric Tester and a Line Power Tester, so there is a control panel for each instrument. Autoware 7600 will only have an instrument setup panel for the HypotULTRA III.

The panel for setup of HypotULTRA III is used to set up the following functions:

### Communication Type

Three options are available for Communication Type: Serial (RS-232), GPIB or Demo. Select the type of communication protocol you are using. If GPIB is selected, then be sure you have installed a properly configured GPIB card in your PC. If you select Serial (RS-232) be sure you have an active and properly connected Serial Port on your PC. Demo mode doesn't require a communications protocol to be set. It has limited functionality and is intended to demonstrate some of the basic functions of this software application.



### Address/Com Port

Address refers to the GPIB address of the instrument you are controlling. Valid GPIB addresses are 1-30. You may control up to 15 instruments using a single GPIB card but each instrument must have a unique address. Com Port refers to the setting of a serial device. Normal serial port addresses for Com Ports are numbers 1-4. A single Com Port may control only one instrument.

### Type of Unit

Valid instruments that work on the Dielectric Tester panel include 7620 and 7650. Please select which instrument you would like to control.

### Serial Number

The serial number of the test instrument can be used for ID purposes on test results data, printing, and calibration due date checks. Enter the serial number from the serial number plate on the test instruments if you would like Autoware to use it.

### Calibration Due Date

You can enter the calibration due date for the instrument if you will be using the Calibration Alert Utility (see page 6), or if you would like the date to show on hard copy print outs.

### Scanner

There are four scanner options available:

- 1 x 8 Channel Scanner (internal or external)
- 2 x 8 Channel Scanners (one internal and one external)
- 1 x 4 Channel Scanner (internal)
- None

Select the scanner setting that matches your hardware configuration.

Note: if your scanner configuration consists of one internal 4 Channel Scanner and one external 8 Channel Scanner, choose the selection for 2 x 8 Channel Scanners. Autoware will ignore scanner channels 5 through 8 when this situation occurs.

When using Autoware 9100, the panel for setup of the LINECHEK or RUNCHEK is used to setup the following functions:

### Communication Type

There are three options available for Communication Type: Serial (RS-232), GPIB or Demo. Select the communication protocol you are using. If GPIB is selected, then be sure you have installed a properly configured GPIB card in your PC. If you select Serial (RS-232), be sure you have an active and properly connected Serial Port on your PC. Demo mode doesn't require a communications protocol to be set. It has limited functionality and is intended to demonstrate some of the basic functions of this software application.

### Address/Com Port

Address refers to the GPIB address of the instrument you are controlling. Valid GPIB addresses are 1-30. You may control up to 15 instruments using a single GPIB card but each instrument must have a unique address. Com Port refers to the setting of a serial device. Normal serial port addresses for Com Ports are numbers 1-4. A single Comm Port may control only one instrument.

### Type of Unit

Valid instruments that work on the Line Power Tester panel include 520L and 905D. Please select which instrument you would like to control.

### Serial Number

The serial number of the test instrument can be used for ID purposes on test results data, printing, and Calibration Alert due date checks. Enter the serial number from the serial number plate on the test instrument if you would like the Autoware program to use it.

### Calibration Due Date

You can enter the calibration due date for the instrument if you will be using the Calibration Alert Utility (see below) or if you would like the date to show on hard copy print outs.

There are three other panels in the Setup System Parameters screen, and they are used for the following:

### **Calibration Check Setup Panel / Calibration Alert Utility**

Calibration due date information for the test instruments can be checked each time the software is started. The "# of days to warn" parameter will select the number of days prior to the calibration due date that the software will prompt you the calibration is coming due. If the Security Mode is ON, the prompt can only be cleared by a user that has Full System Access security rights, so that management personnel will be aware of the calibration information.

The prompt will only be shown one time until the calibration is out of date. When the calibration date is equal to or past the due date, the prompt will occur only after the software is started and one of the main menu buttons is pressed. The warning is always relative to the particular instruments of the selected configuration number under "Instruments Under Control".

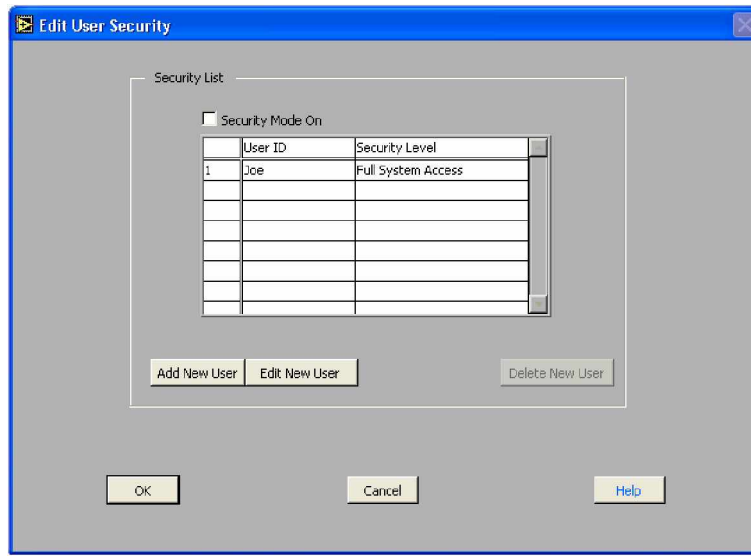
### **Print Settings Setup Panel**

These settings allow you to configure a printed report for each device that has been tested. The report will display all tests that were performed on a product with its model and serial number, test instruments used, date and time, the operator or user identification, and the setup parameters file name if one was used to configure the instrument.

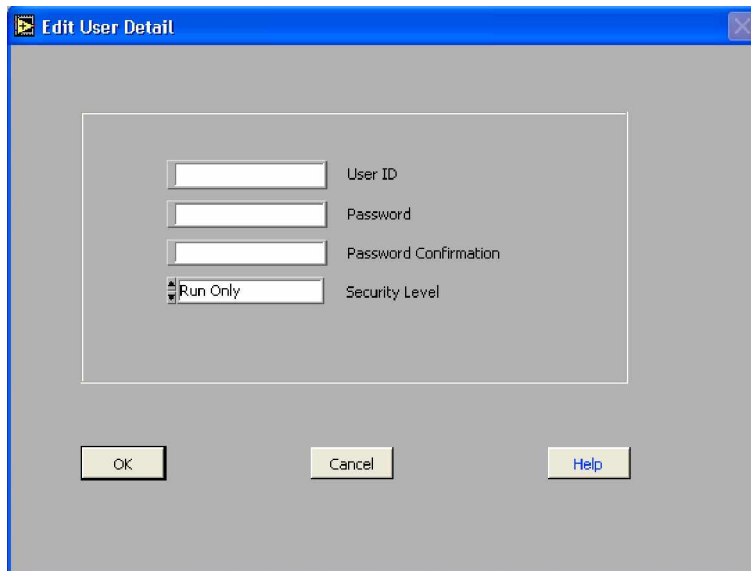
When "Auto Print" is selected, a printout of test results will automatically be sent to the printer at the conclusion of every test. If you wish to only have an automatic printout of failures, then in addition to selecting the "Auto Print" function you also need to select "Print Failures Only". This will send a printout of only test failures to the printer at the conclusion of the test. If multiple tests are linked together and any one test fails, the "Print Failures Only" function will print all steps of the test including those that may have passed. To view the contents of this report a print preview button is available on the two Run screens and the Last Test Results screen.

### **More Settings Setup Panel**

User Security - If you click on the key labeled "User Security" you will be taken to the screen shown below. In this screen you can view the list of users that are setup and their security level. Only users with Full System Access can enter this screen when security has been enabled. The security mode can be selected in this screen by using the check box near the top of the window labeled Security Mode On. After changing the Security Mode, click on the OK key to save the changes or click on Cancel to return to the previous setting.



Edit User Detail - New users may be added or existing users may be edited here. When adding a new user, click on the "ADD NEW USER" key. The window shown below will appear.



Enter an alpha/numeric User ID, Password, Password Confirmation and desired security level. If you wish to invoke security then you must check the box at the top of the panel, "Security Mode On". There are four security levels to choose: Run Only, Edit Setups, Recall Setups and Full System Access.

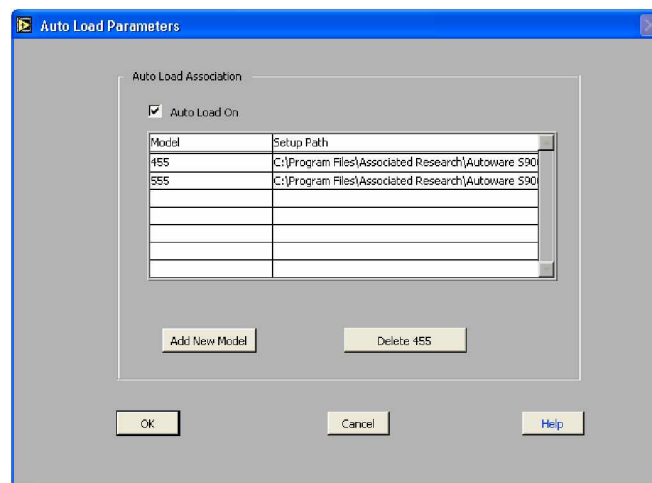
Run Only - This is the most restricted mode of user access. The user can only initiate a test, reset a failure or abort a test.

**Recall Setups** - This mode allows the user to recall previously configured test setups but it does not allow any editing of the parameters. In this mode the user is restricted from access to the "Setup Test Parameters" screen.

**Edit Setups** - In this mode the user can recall and edit test parameters.

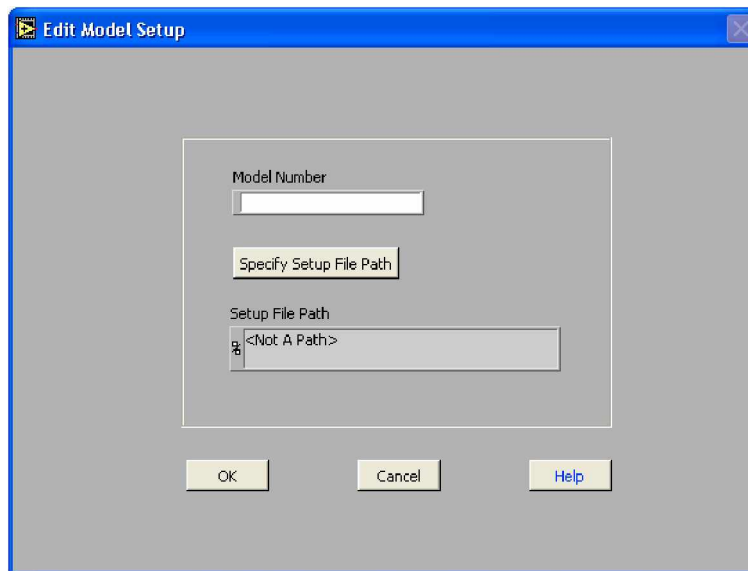
**Full System Access** - This mode is full access level to all instrument setup parameters as well as software configuration and security levels. Access at this level should be restricted to System Administrators.

**Auto Load Parameters** - If you click on the key labeled "Auto File Loading" you will be taken to the screen shown below.



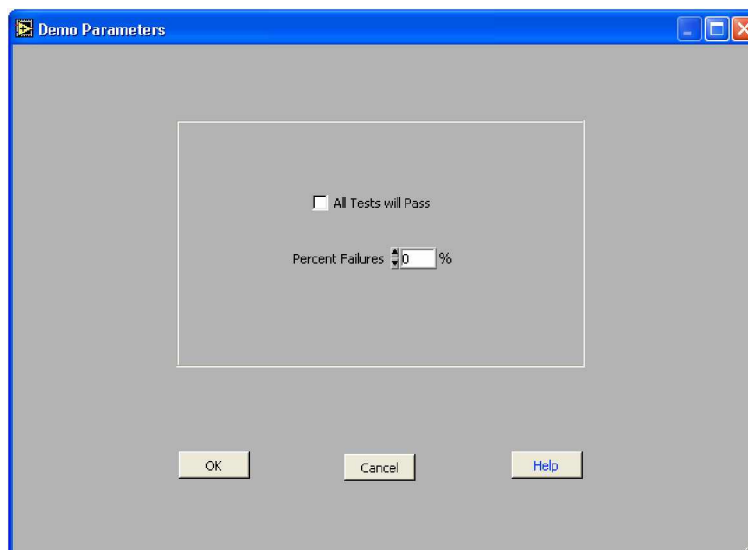
This screen allows the operator to automatically load and edit setup files by associating the test parameter setup files to a model number. You must have already created the setup file using the Setup screens before you can make the association. When a model number is typed or scanned with a bar code scanner, the setup file will be automatically loaded. This screen shows all associations and allows access to sub-level screens to make changes to the association. The association feature can be enabled or disabled by selecting the check box at the top of the screen. The check box must be enabled for the auto loading to occur on the appropriate Run screen. You can create a new model association or click on the delete key to cancel an association after you have highlighted the appropriate selection. To change an association for a specific model you must first delete the association and then create a new one by adding a new model.

**Edit Model Setup** – Clicking on "Add a New Model" from the "Auto Load Parameters" screen will launch this screen:



First enter the model number and then click on "Specify Setup File Path" key. A pop-up window to select the file will appear. Select the file then click OK. Verify that the correct path is shown in the path window, and then click on the OK key to complete the association.

Demo Parameters - If you click on the key labeled "Demo Parameters" you will be taken to the screen shown below.

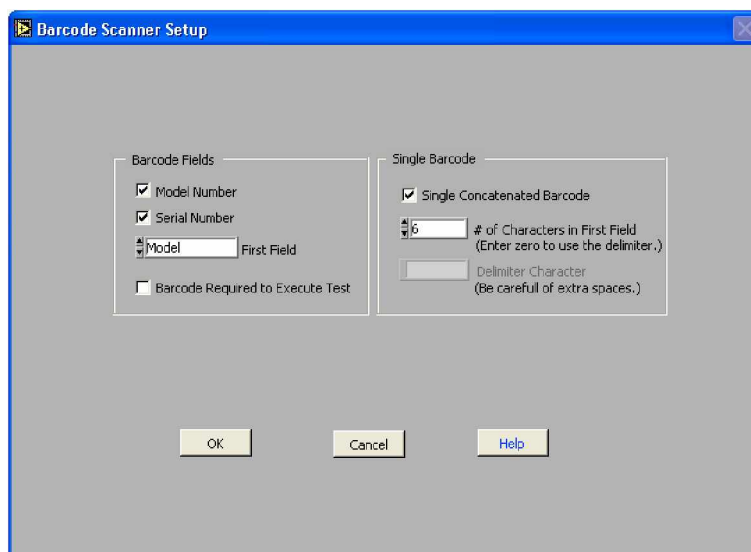


When "Demo" mode is selected in the "Communication Type" area of the instrument setup panel, several additional parameters may be set. You may check "All Tests will Pass",

which will simulate the passing of all DUT's tested, or you may set a % of tests to FAIL. When executing tests in the demo mode, the test results will be controlled by these two parameters. If "All Tests will Pass" is selected, then the Percent Failures value will be ignored and all test results will indicate Pass.

When "All Tests will Pass" is not selected, the program uses the Percent Failure value to generate an approximate failure rate based on this number. For example; if the percent failure value is 20%, 2 out of 10 tests will generate a failure result.

Barcode Scanner - This button gives you access to the Barcode configuration screen shown below.



**Barcode Scanner Setup screen showing concatenated barcode setup**

If you desire to use a barcode in your system to capture Model or Serial numbers with your test results data, you will need to setup the barcode format in this screen. Other features can also be configured in this screen such as using single or multiple barcodes or to require a barcode input before tests can be performed.

Two fields can be setup as barcode input. They are the DUT Model Number and Serial Number. The configuration can be set to scan one of the two or both inputs. They can also be separate barcodes or one single concatenated barcode containing both fields.

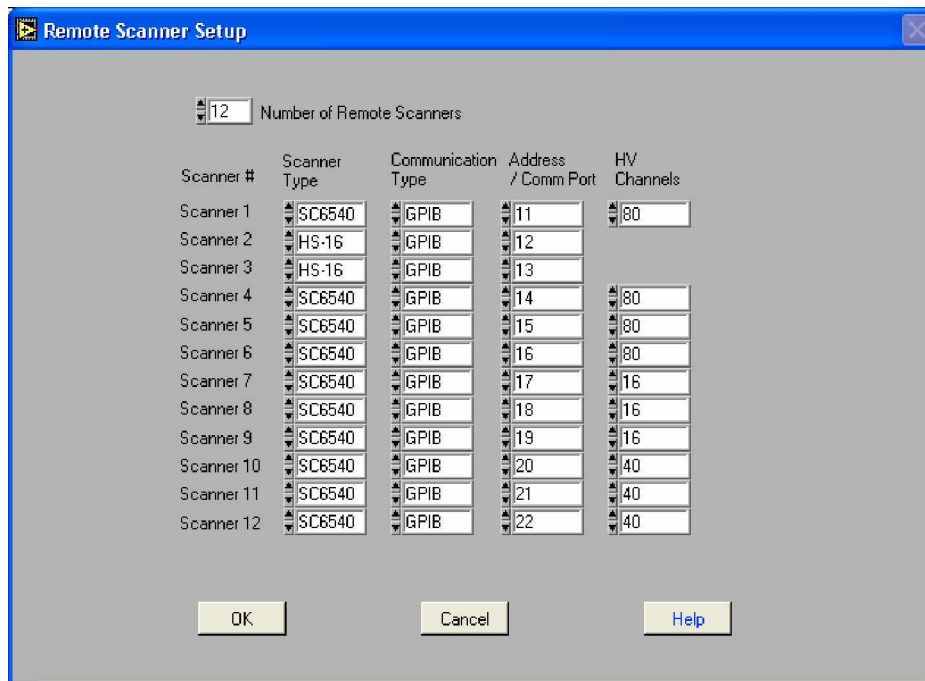
To activate the barcode scanner, first select Model Number, Serial Number or both from the "Barcode Fields" section. If you are using both barcodes, then also select which one you would like to scan first from the "First Field" selection. The "First Field" selection will determine the position of the fields on the individual run screens and the first field will appear above the other. This selection also determines the order of the fields when using the concatenated barcode configuration.

To use a single concatenated Barcode containing Model and Serial numbers, check the "Single Concatenated Barcode" selection from the "Single Barcode" area. After selecting this configuration, two other fields become available, "# of Characters in First Field" and "Delimiter Character". If your barcode does not have a special character or characters to separate the Model and Serial number fields, then simply enter the number of characters that represents your first field. The remaining characters in the barcode will be used for the second field.

If your barcode uses a character separator or delimiter, then set the "# of Characters in First Field" equal to "0" and enter the delimiter character in the "Delimiter Character" field. The first field will use all of the characters before the delimiter character and the second field will use all characters after the delimiter.

Another feature of the barcode configuration is the ability to require a barcode data input to enable the Test button. This assures that the Model and/or Serial numbers will be recorded along with the test results for printing or data storage functions. To enable this feature check the "Barcode Required to Execute Test" selection in the "Barcode Fields" area.

Remote Scanners - This button gives you access to the Remote external scanner communication setup screen shown below.



Scanner #	Scanner Type	Communication Type	Address / Comm Port	HV Channels
Scanner 1	SC6540	GPIB	11	80
Scanner 2	HS-16	GPIB	12	
Scanner 3	HS-16	GPIB	13	
Scanner 4	SC6540	GPIB	14	80
Scanner 5	SC6540	GPIB	15	80
Scanner 6	SC6540	GPIB	16	80
Scanner 7	SC6540	GPIB	17	16
Scanner 8	SC6540	GPIB	18	16
Scanner 9	SC6540	GPIB	19	16
Scanner 10	SC6540	GPIB	20	40
Scanner 11	SC6540	GPIB	21	40
Scanner 12	SC6540	GPIB	22	40

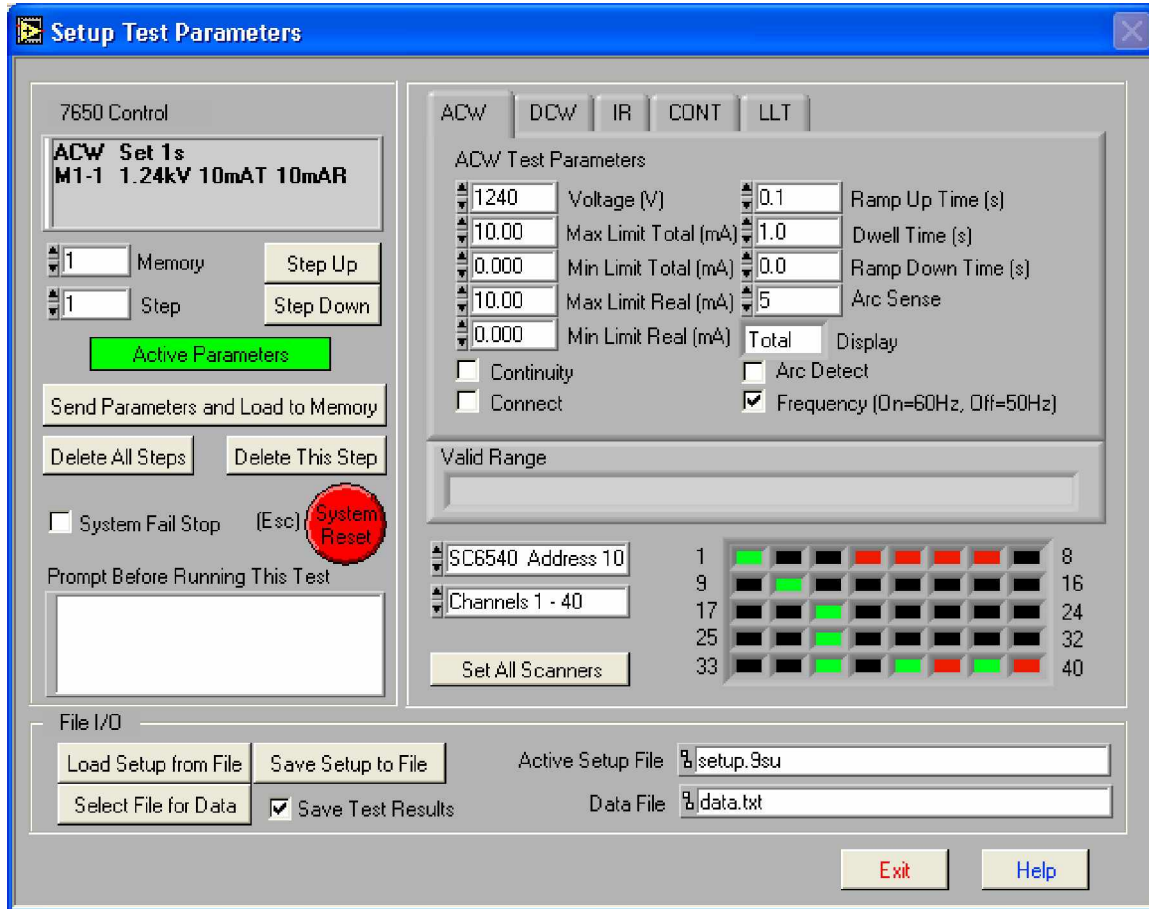
When your system includes one or more Remote scanners, use this screen to select the type of Scanner, the Serial or GPIB communication type, and the GPIB address or serial communication port number. For model SC6540 you must also configure the number of scanner channels installed in the system.



In this screen you can select the appropriate number of remote scanners that you will include in your system and then define the communication parameters for each. First enter the number of remote scanners in your system into the "Number of Remote Scanners" field. After the number is entered, the communication configuration fields will appear.

First select either SC6540 or HS-16 model numbers under the scanner type field for each additional remote scanner. Then select one of the three communication types, GPIB, Serial or Demo mode. In Demo mode you will be able to run the software without having any instrument connected to the system. Next, enter a valid number in the Address / Comm Port field for the appropriate communications type that you have selected.

If you have scanner model SC6540 configured in the system then also enter the number of HV channels that will be controlled from that communication port, and then click OK to save the configuration. The scanner configuration will be saved within the system setup file along with communication parameters for the other test instruments in the system.

**SETUP TEST PARAMETERS**


**Setup Test Parameters screen Autoware 9100**

This screen is broken down into three separate panels: Instrument Control, Test Parameters and File I/O.

### **Instrument Control and Test Parameters Panels**

#### Step Up/Step Down

These keys work in conjunction with the Memory and Step up/down arrow keys. For HypotULTRA III there are a total of 50 memory locations and each location contains 30 programmable steps. If you are using Autoware 9100, LINECHEK has 50 memories with 8 steps for each memory, and the RUNCHEK has 10 memories with no individual steps. In the case of the RUNCHEK, the Step Up/Step Down keys can be used to control the memory selection.

A STEP is a location where a single test can be setup, stored and performed. When a memory selection has been made such as memory 1, clicking on the "step up" key will increment the step number displayed in the Step Selection Box. You may scroll through

each of the steps in any given memory. Once you reach the last step in a memory, you will automatically be taken into the next memory. Steps and memories may be linked to set up an automated test sequence.

RUNCHEK does not have step functions, but memories can be connected to create a sequence of tests. 10 memories are available on RUNCHEK.

EXAMPLE: How you would use the "Memories" and "Steps."

Let's start at Memory position 1, which is the default. With HypotULTRA III you have FOUR different types of tests that you can perform: AC Withstand (ACW), DC Withstand (DCW), Insulation Resistance (IR), and Continuity (CONT).

For our example we will run a Continuity test first, then an AC Withstand test and finally an IR test. We want to run these three tests in sequence and automatically.

1). Be sure the "Memory Selection" is at position 1 and that the "Step Selection" is also at position 1 (The instrument display will show this as M1-1). Select the CONT (Continuity) tab with your mouse. This will highlight CONT as your selection and bring up the "Continuity Test Parameters" window. Again, be sure that you are currently in "M1-1."

2). Set your parameters for the Continuity Test on the right hand side of the screen following the parameters as listed. Once all your parameters are entered be sure to check the box "Connect" then click on the "Send Parameters and Load to Memory" button. These parameters will be stored in "Memory" 1 "Step Selection" 1 (M1-1). By checking the connect box you are now programming the instrument to LINK the program in memory 1, step selection 1 (M1-1) to the program in memory 1, step selection 2 (M1-2).

A small note about the "Send Parameters and Load to Memory" button: When you press the "Send Parameters and Load to Memory" button, the test parameters will be loaded into the instrument and the "Parameters Not Loaded" field will turn "green" and will now read "Active Parameters". These test parameters will also be present in PC RAM. All steps/memories that have been sent test parameters will be "Active Parameters" until the buttons "Delete all Steps" or "Delete this Step" are pressed. RAM will be cleared of all active test parameters if "Delete all Steps" is pressed or RAM will be cleared of the current step's parameters if "Delete this Step" is pressed. If "Delete all Steps" is pressed, RAM will be cleared of all test parameters for the particular instrument the test type is specific to only. For example, if the ACW, DCW or IR tabs are selected, pressing "Delete all Steps" will clear RAM of all "Active Parameters" associated with the HypotULTRA III. The same is true for the LINECHEK or RUNCHEK when the LLT or RUN tabs are selected.

3). Now, press the "Step Up" button once to increment it to STEP SELECTION 2. Highlight and click on AC Withstand (ACW) with your mouse. Again, be sure you are in memory 1 and step selection 2 (M1-2). Now, enter your parameters for your ACW test

following the parameters as listed. Next, be sure to check the "Connect" box. Then, click on "Send Parameters and Load to Memory." This will send and store the ACW test in Memory 1, step 2 (M1-2) and link the program to memory 1, step selection 3 (M1-3).

4). Repeat the same sequence of steps for the IR test. However, this time DO NOT check the "Connect" box. This is necessary since you are not going to setup or link a 4th test at this time.

#### SETUP OF LINECHEK or RUNCHEK (Autoware 9100)

The setup function for LINECHEK and RUNCHEK is similar to the setup of the Dielectric Safety Analyzer whereby the user is required to set up each step or memory of the test individually. When using RUNCHEK, which doesn't have steps, the process would be the same with the exception that you will be connecting memories instead of steps.

However, when configuring LINECHEK, it is important to remember that even though each step of a Line Leakage test is essentially part of a single Line Leakage test, you must click on "Send Parameters and Load to Memory" after completing the setup for each step. Setups for each step will not be saved unless this key is pressed. The Automatic Test Sequence Configurator can also be used to have the LINECHEK parameters automatically set up by the software. For more information see the section of this manual that covers "Setup Test Sequence /Auto-Configurator".

#### Fail Stop

This feature is only available on instruments that include multiple steps within memories that can be linked together. When in the checked position the test will stop at the step where a FAILURE condition occurred. If there are unfinished test steps to be performed, clicking on the "TEST" key again will continue the test process to the next step. Clicking the "RESET" key then the "TEST" key will start the process from the first step. When unchecked, the test will continue to the final step of the sequence even if a FAILURE condition occurs in a previous step.

#### Start RUNCHEK after last step

This selection box will determine how the two instruments operate as a system. When this box is checked the two units will operate as complete system by pressing the HypotULTRA III test button on the Run Tests screen. When the last step of the HypotULTRA III test has completed, the RUNCHEK will be started automatically. However, the RUNCHEK can be started independently without the HypotULTRA III having run first, by pressing the test button for the RUNCHEK directly.

When this box is not checked, the two instruments will operate independently and the user must press the appropriate test button on the Run Test screen to start either of the two instruments.

### Other Screen Options

**CONTINUITY BOX (HypotULTRA III only):** When this box is checked, the instrument will continually monitor the ground continuity when a test (ACW, DCW, IR) is in progress. If the DUT's ground system does not have continuity, the software will indicate a continuity failure when the "Test" button is activated. Under this condition, high voltage will not be activated. If a test is already in progress and the DUT's ground system suddenly loses its continuity, the high voltage will be turned off and the software will indicate a continuity failure. The difference between "checking" the continuity box and the Continuity (CONT) test itself, is that the Continuity test will indicate the exact value of the ground system's impedance, and the "checked box test" will monitor the presence of ground continuity only. Note: the return cable must be connected to the chassis of the DUT.

**50Hz/60Hz BOX** – This allows you to select an output frequency of 50 or 60Hz during an ACW test so you can match the frequency at which the DUT is normally operated. Point the cursor in this box and click your mouse to toggle between 50/60 Hz.

**RAMP HI BOX** – The patented "Ramp HI" feature is only available when performing the DCW or IR test with model 7650. By checking this box you can quickly ramp the instrument's voltage output without suffering the normal nuisance tripping that is common in a DCW test due to the DUT's charging current exceeding the normal HI-Limit current setting. This function is only active during the ramp period. For a more detailed explanation of the Ramp-HI function, see the manual that came with the test instrument.

**AUTO CHARGE-LO BOX** – The patented Auto "Charge-LO" feature is only available when performing DCW or IR tests with model 7650. By checking this box this function will indicate whether your test leads are properly connected at the beginning of a test. When performing DCW and IR tests, a capacitive DUT will draw charging current when the output is activated. The Auto Charge-LO function monitors this charging current looking for a minimum current flow (approximately 1/2 of the total charging current). If the charging current is lower than the Charge-LO setting, a failure will occur indicating that your test cables may not be connected. To set the Auto Charge-LO function, be sure that the output voltage and ramp time have been set to the values that will be used for the final test, and connect the test cables and/or test fixture between the instrument and DUT. Click on the "Send Parameters and Load to Memory" key and the "Auto Charge-LO" will be set. If a scanner is used be sure to set the correct scanner channels.

The Charge-LO current may also be set manually. This is accomplished by setting the "Auto Charge-LO" to the unchecked position and entering a value between 0-350.0 $\mu$ A under Charge-LO, which is located in the "DCW Test Parameters" window. Again, be

sure that the output voltage and ramp time have been set to the values that will be used for the final test, and then connect the test cables and/or test fixture between the instrument and the DUT. Be sure to click on the "Send Parameters and Load to Memory" key to save the setup. If a scanner is used, be sure to set the correct scanner channels.

**CONNECT BOX** – The "Connect" box is used to instruct the software to connect or link one or more tests in sequence. If Connect is checked, the next step in the sequence will be executed. If Connect is unchecked the test sequence will stop at this step. When using Autoware 9100, LINECHEK does not have a "Connect Box", but rather a "Connect State" selection. Selections include: ON, OFF and External Link. If connect is set to ON, the current step will link to the next step. If the selection is OFF, the testing will end with the current step. If the selection is External Link, when that step has completed the HypotULTRA III will begin a dielectric test.

**PROMPT BOX** – The Prompt Box is used to insert a pause within the test sequence. Type in a message that will appear in a dialog box before the test executes. When the test is started from the Run Tests screen, the user will be given a dialog box with the prompt message shown before the actual test starts. The user must press the OK button on the dialog box to clear it before the test will execute. When the user presses the OK button the test will execute automatically. A different prompt can be inserted before any step selection.

**ARC FAIL BOX** – An additional/optional setting for ACW and DCW is Arc Sense, which has a range of 1-9. By checking the "Arc Fail" box you are activating a very sensitive Arc Detection System capable of detecting arcs of very short duration with adjustable amplitude trip settings. For more information on ARC Detection see the Operations Manual, FAQ's, or visit AR's Web Site at <http://www.asresearch.com>.

### SCANNER SETTINGS

The scanner can only be used when the HypotULTRA III is used individually or in special configurations on the System 9100. Contact Associated Research with questions concerning scanner applications at 1-800-858-8378. Note: Scanner cannot be used to perform LINECHEK or RUNCHEK measurements.

To enable your local or remote scanners you must go to the "Setup System Parameters" menu. Select the scanner setting under the HypotULTRA III hardware configuration for local scanners, or press the Remote Scanner button for remote scanner setup.

Note: If your HypotULTRA III has a scanner module installed, you must configure it as such in "Setup System Parameters". If it is not, you will have problems sending test parameters.

If more than one scanner has been configured, you can choose each scanner from the scanner selection list. Once selected, a graphic representation of the scanner channels will appear to the right of the selection on the "Setup Test Parameters" screen.

The selected scanner will be visible and you will be able to change or view the channel settings. The selector will show the 8 or 4 channel local scanners as well as all remote scanners, but you can only view one scanner at a time from the "Setup System Parameters" screen. If you desire to view all scanners at one time, press the "Set All Scanners" button that is below the scanner selection field. From this screen you will view the local scanners and all remote scanners that have been configured in the system.

Each of the outputs can be set as High (High Voltage, or Cont. Check), Low (Return) or Open. By clicking on the colored box of the graphic representation you can setup each individual channel. To set an output for High Voltage or Cont.Check, go to the desired channel and click the mouse on the box. The box will turn RED; indicating a High output. To set an output for Return go to the desired channel and click the mouse on the box twice. The box will turn GREEN; indicating a Low position. When the box is BLACK the channel is "Open" or inactive. Clicking the mouse multiple times will change the color from Black to Red to Green and back to Black again in a continuous loop. Note: On scanner model HS-16 the Continuity mode is configured to run through the HV matrix (not Ground Bond). This mode requires special connections to be made to the HS-16.

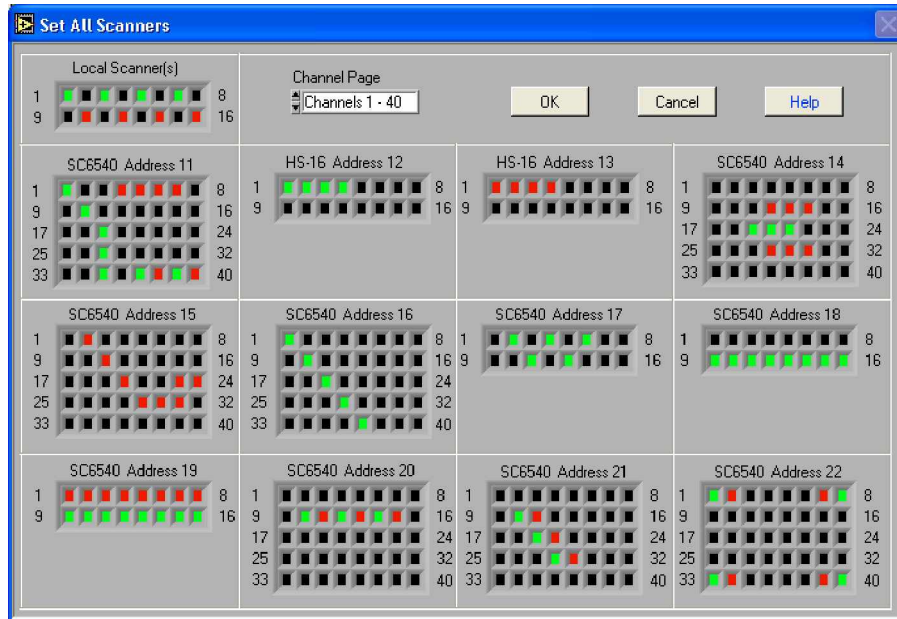
For example, let's say that you want to set up the scanner and use the ACW test so that upon activation it will test four different points on a DUT. This is what you would do:

- 1). After setting up the basic ACW test parameters, click the mouse on the box of the first scanner channel. The box will turn RED; indicating a HIGH position. Do the same for position 2-4. All four positions should illuminate red.
- 2). Click on "Send Parameters and Load to Memory" key to send and store your test setup.

That's it! You have told the instrument to perform an ACW test that will activate four high voltage channels on the scanner during the test. Be sure that you have properly connected the test leads from scanner channels to your DUT or test fixture before activating the test. See the operator's manual that you received with your scanner for connection information.

### SET ALL SCANNERS

If you desire to view all scanners at one time, press the "Set All Scanners" button that is located next to the scanner selection field. By pressing this button you will open the following screen.



**Setup All Scanners screen showing 12 Remote scanners**

This screen will show the 8 or 4 channel scanners and all remote scanners that have been configured in the system. This screen gives you the capability to view and edit all configured scanners at one time. The 8 channel scanners are shown in the upper left-hand corner and the balance of the screen is used to display the 12 possible remote scanner setups. The screen has been formatted to display all 12 remote scanners at one time so when using only a few scanners most of this screen will be blank.

Each of the outputs can be set as High (High Voltage, or Cont. Check), Low (Return) or Open. By clicking on the colored box of the graphic representation you can setup each individual channel. To set an output for High Voltage or Cont. Check, go to the desired channel and click the mouse on the box. The box will turn RED; indicating a High output. To set an output for Return go to the desired channel and click the mouse on the box twice. The box will turn GREEN; indicating a Low position. When the box is BLACK the channel is "Open" or inactive. Clicking the mouse multiple times will change the color from Black to Red to Green and back to Black again in a continuous loop. Note: On scanner model HS-16 the Continuity mode is configured to run through the HV matrix (not Ground Bond). This mode requires special connections to be made to the HS-16.

### **File I/O Setup Panel**

#### Load Setup from File

- 1). Click on the "Load Setup from File" key.
- 2). The FOLDERS screen will open and it will show your last path and files. Select the drive, path, and file you wish to load from memory.



3). Click on OK. A screen will pop up that will show you the loading activity that is occurring, and the elapsed time and number of steps left to load. Once this process is complete you may run your test or you can edit the setup and restore it.

#### Save Setup to File

If you wish to permanently save your setup to a file that can be recalled and used to automatically setup the instrument in the future, then do the following:

- 1). After the setup is complete click the "Save Setup to File" key.
- 2). You will be asked to select a file name and a path to store the setup file. We suggest you give the setup a name that reflects the product or products you are testing or a setup sequence number. We also suggest you store all your saved setups in a similar file format, extension and directory.
- 3). Click on OK. The setup is then saved and stored.

All test Memories/Steps that have the "green" field "Active Parameters" associated with them will be saved to the file.

#### Select File for Data

If you wish to save your test results to a file to examine in the statistics screen or to import into another software application, then you should check the box titled, "SAVE TEST RESULTS." Then click your MOUSE on the key titled, "SELECT FILE for DATA." This will open up a window that will let you name a path, directory and file to save your test results. We suggest that you keep all your test data files in similar directories and use a similar format for naming the files, such as PRODUCTA.TXT. The selected path will then be displayed in the information box on the lower portion of the screen.

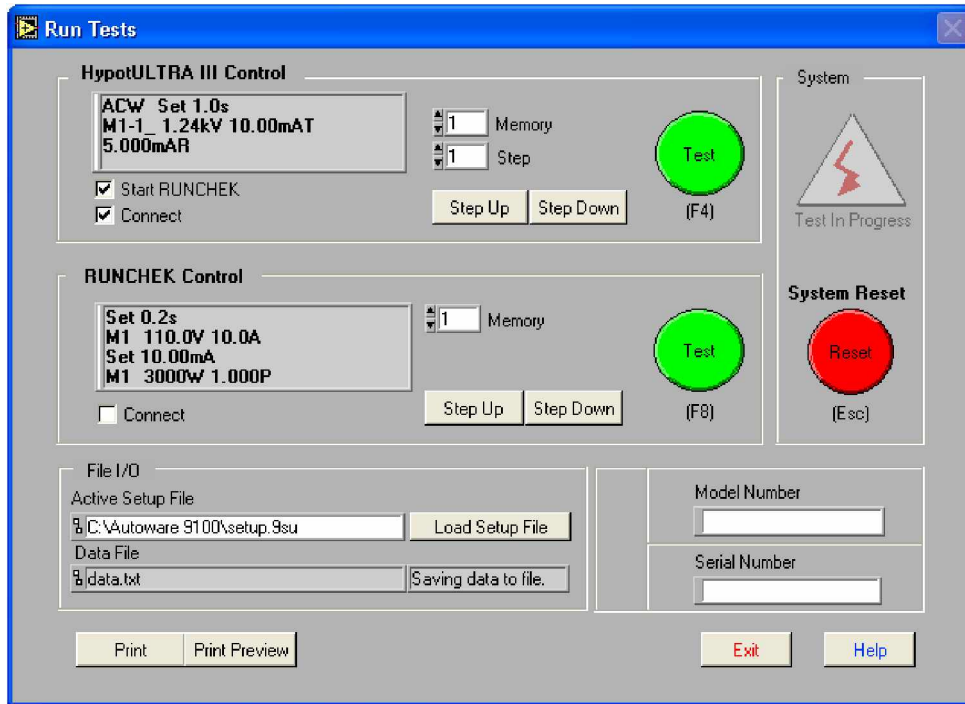
#### Save Test Results

This box must be checked in order for test results to be saved to your chosen file. If this box remains unchecked, no data from tests will be saved.

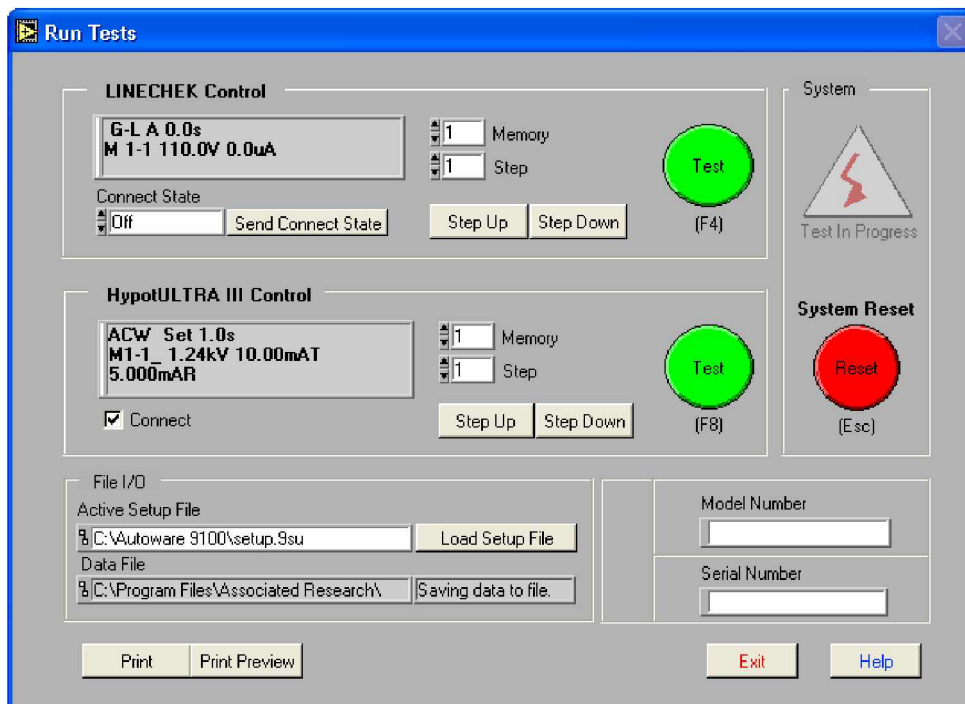
#### Active Setup File and Data File

This displays the path and file that was chosen to setup a test from and where the data will be stored. This is simply a display for reference purposes, and if you want a different file you must select it as previously described.

RUN TESTS



Run Test Screen Autoware 9100 with RUNCHEK



Run Test Screen Autoware 9100 with LINECHEK

The screens shown on the previous page are from Autoware 9100 which controls a Dielectric Tester and LINECHEK or RUNCHEK. Autoware 7600 has a similar screen except only one instrument control panel is available. This screen is where you will run your programmed tests. When you first enter this screen you will be in the same "Memory Selection" position and/or "Step Selection" position that you last set up in the "Setup Test Parameters" screen.

(Only for Autoware 9100 with LINECHEK) - You will also see a box labeled "Connect State", which will indicate whether connect mode is ON, OFF or External Link. This is your verification that you have linked steps or memories on the LINECHEK. You are able to change the connect state from here without returning to the "Setup Test Parameters" screen. Next to this you will see another box labeled "Send Connect State". If you wish to change the connect state you must click your mouse on this key. You can also preview all your linked tests by using the "Step Up" and "Step Down" keys.

(Only for Autoware 9100 with RUNCHEK) – You will see a “Connect” box in the field for the RUNCHEK. This box enables you to change the connect state of the current Memory without returning to the Setup Test Parameters screen. You will also see a box labeled “Start RUNCHEK after last step”. This can be checked ON or OFF prior to starting the test to automatically start the RUNCHEK after the Dielectric test is finished. The selection on this screen provides a quick way for the operator to confirm and adjust the system connect setting if needed. After the first test, the selection box will disappear so that it cannot be inadvertently changed after testing has begun.

The panel for the HypotULTRA III will also have a box labeled “Connect”. This can be checked ON or OFF prior to starting the test. The connect box on this screen provides a quick way for the operator to confirm and adjust the connect setting if needed. After the first test the connect box will disappear so that it cannot be inadvertently changed after testing has begun.

In the lower left-hand corner of this screen the specified file and path in which you are logging data is shown. If the box is labeled "Not Saving to File", this means that in the "Setup Test Parameters" screen you did not check the box labeled "Save Test Results" and/or did not specify the file and path in which you are logging test data. To save test data you must return to the "Setup Test Parameters" screen and make these changes. You may, however, choose to load a setup file from here without going back to the "Setup Test Parameters" screen.

This screen also has fields for Model and Serial number input. The data for these fields can be entered manually or automatically using a barcode scanner. To use the barcode it must first be activated from the "Barcode Scanner Setup" screen where the barcode can be enabled and the format can be configured. The "Barcode Scanner Setup" screen can be accessed from the "Setup System Parameters" screen. When the barcode has been enabled, the section border around the Model and Serial Numbers will be labeled "Barcode Scanner". You may then scan Model Number and or Serial Number information

before you initiate a test. Data will then be logged by model number and or serial number into the "Examine Statistics" screen and be recorded on the printed output.

#### Initiating a test with Autoware 9100

The TEST switch is used to initiate a test. On Autoware 9100 there are two independent "TEST" switches to allow the operator to activate either the LINECHEK or RUNCHEK or the Dielectric Tester. There is a single "SYSTEM RESET" switch that can be used as an abort switch for both instruments. If the "External Link" for LINECHEK was selected for the last step in the setup, then both instruments will be run sequentially by selecting the test switch for LINECHEK. If "Start RUNCHEK after last step" was selected in the setup, then both instruments will be run sequentially by selecting the test switch for Dielectric Tester.

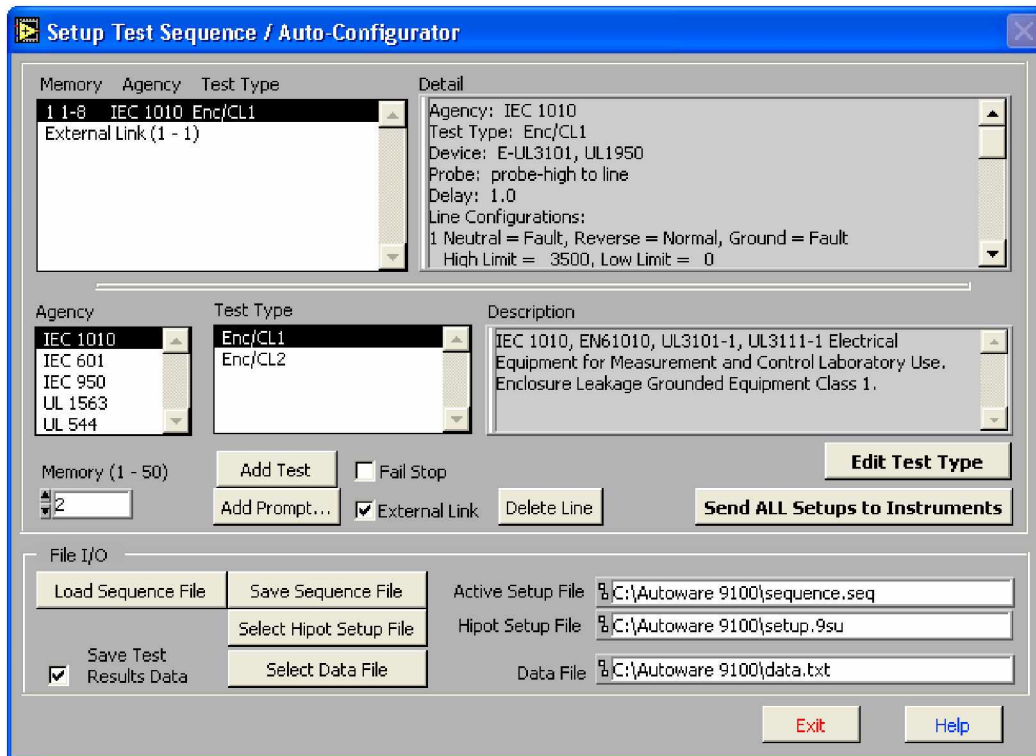
The Test and Reset Switches can also be controlled from the keyboard directly by pressing the F4 or F8 function keys for Test, and the escape key (Esc) for Reset. The function key F4 is always used to start the complete system. You will notice that the Test button on the control panel towards the top of the screen is the first instrument to start the system sequence. The first unit is either the LINECHEK or the Dielectric Tester depending on which Line Power tester is configured into the system from the System Setup Screen.

The "Print Preview" key will show the results that will be printed if the print key is selected. If the Exit key is selected from the print preview screen, clicking the Print key on the previous screen will still generate the print-out that was previewed. When scrolling to view any results that are off the bottom of the viewing area, the control keys at the top of the screen will be off the viewable area. This is normal and you will need to scroll back to the top of the screen using the scroll bars to access these keys. The keys will operate at any location on the viewing screen.

Lastly, the Virtual Instrument Display allows you to capture the actual instrument readings in real time. If you scroll through Memory Selections and Step Selections the displays will also show the test parameter settings which have been stored to each memory.

The following section only pertains to Autoware 9100 for control of LINECHEK.

## SETUP TEST SEQUENCE/AUTO-CONFIGURATOR



Setup Test Sequence / Auto-Configurator screen Autoware 9100

### Using Auto-Configurator to set up standard safety agency tests

This screen allows you to quickly configure LINECHEK to test to agency specifications. Because of the number of steps normally involved in performing a Line Leakage test, the setup of the instrument can be a tedious process. A key advantage of using the Auto-Configurator function is that the most common safety standard requirements have been pre-programmed into Autoware. By simply selecting the standard and the type of test you wish to perform, the LINECHEK is automatically set up for the most common configuration. You can begin to build a test sequence by first selecting the safety agency standard that you are testing to. You then choose the type of test that you wish to add to the sequence by clicking on the test type in the description box and then clicking on the "Add Test" key.

A brief description of the test type appears in the "Description" window for the test that is highlighted. As you add tests to your sequence, you will be able to see each step of your test sequence in the window at the upper left side of the screen. The "Detail" window on the upper right hand side of the screen gives you complete setup detail of each step of your test sequence. The detail will correspond to whichever step of your test is highlighted.

While building your custom test sequence you also have the option of having the LINECHECK pause. A common use of a pause control is to allow the test operator to make a connection change with test probes. The software allows you to "Add Prompt" to remind the operator to make this change. If a prompt is added, the LINECHECK will stop testing and wait for the operator to click on the ENTER key or to click on the OK key before continuing on with the next steps of the test sequence. You can add a prompt by clicking on the "Add Prompt" key. A small window will appear which will allow you to enter the text for the prompt you wish to insert.

If you mistakenly add a test while setting up your sequence, you can remove any step of the test by highlighting it and clicking on the "Delete Line" key. You can also add a signal from LINECHECK that will initiate the Dielectric Tester to perform Hipot, Continuity and/or Insulation Resistance. This is done by clicking on the "External Link" control. This will insert a signal in your sequence for the software to configure the LINECHECK to have one or all of the safety tests run through its switching network. In order to use the "External Link" function you will need a configured and saved Hipot setup file in the "Setup Test Parameters" screen. For more information on setting up and saving Hipot test parameters access the help file in the "Setup Test Parameters" screen.

Once you select "External Link", click on the key labeled "Select Hipot Setup File" and choose which Hipot setup file you wish the program to use for the sequence. There is also a "Fail Stop" control that you can use to select whether the LINECHECK should stop on a failure condition or continue with the rest of the sequence. If the "Fail Stop" is checked, the LINECHECK will stop after detecting failure at any step and wait for the operator to reset the LINECHECK to continue with more testing.

#### Using Auto-Configurator to setup custom safety agency tests

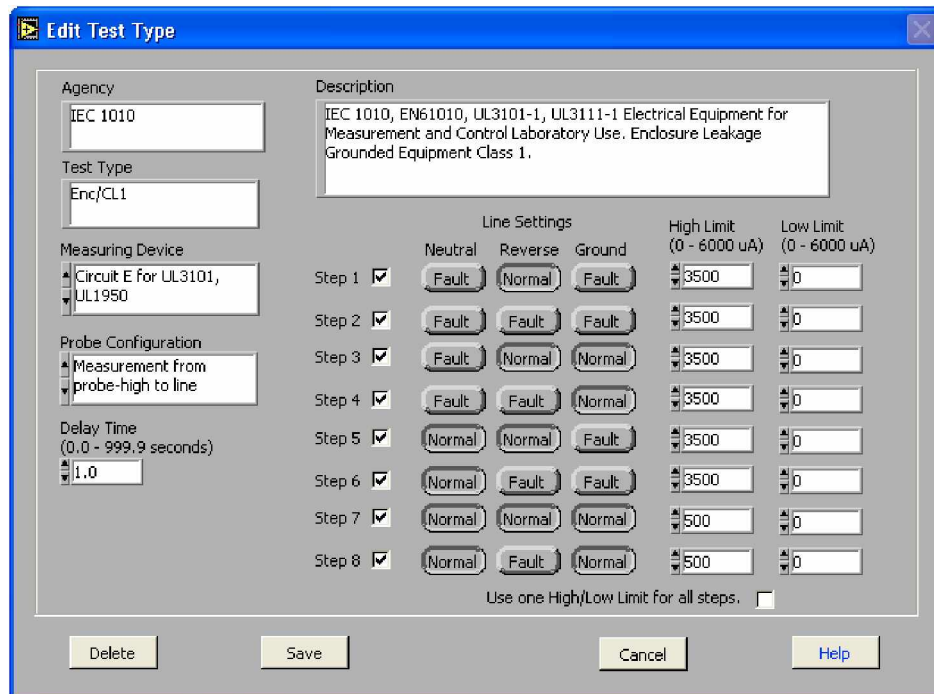
The software comes complete with default settings for the most common Line Leakage safety tests. Because of the variations of tests due to differences in products being tested, the software also allows you to edit any step of the default tests. To do this, simply recall the test type you wish to use and while it is highlighted click on the "Edit Test Type" key. A screen will appear that will show all the detail for this test. You can change any of the setups of the LINECHECK in this window. You can also select whether you wish to set one current trip point or if you would like to have a different trip setting for each step of the test. By using the test edit control you can still have the benefit of having most of your parameters set up for you, allowing you to focus on just the unique setups required for your test item.

Once you have finished the test setup, you can select the "Send ALL Setups to Instruments" key to download the setup into the LINECHECK. Before sending the sequence to LINECHECK you need to select which memory this test sequence should be stored. You can do this by setting the "Memory (1-50)" control to the memory you wish to use for storage of this sequence. You can also choose to save the sequence file to the PC for future use. If you have already stored some sequences, you can use the "Load Sequence File" key to retrieve your test setup.

Autaware 9100 provides a "Select Hipot Setup File" key that is used to select the setup of your HypotULTRA III. When you select this key you are prompted to choose a setup file which was previously configured in the "Setup Test Parameters" screen. This ensures that the compliance analyzer is properly set up to run the correct tests after the line leakage test is complete.

If you wish to save your test results to a file to examine in the statistics screen or to import into another software application, then you should check the box titled, "Save Test Results Data." Then click your mouse on the key titled, "Select Data File." This will open up a window that will let you name a path, directory and file to save your test results. We suggest that you keep all your test data files in similar directories and use similar format for naming the files such as PRODUCTA.TXT. The selected path will then be displayed in the information box to the right of the control.

## EDIT TEST TYPE



	Neutral	Reverse	Ground	High Limit (0 - 6000 uA)	Low Limit (0 - 6000 uA)
Step 1 <input checked="" type="checkbox"/>	Fault	Normal	Fault	3500	0
Step 2 <input checked="" type="checkbox"/>	Fault	Fault	Fault	3500	0
Step 3 <input checked="" type="checkbox"/>	Fault	Normal	Normal	3500	0
Step 4 <input checked="" type="checkbox"/>	Fault	Fault	Normal	3500	0
Step 5 <input checked="" type="checkbox"/>	Normal	Normal	Fault	3500	0
Step 6 <input checked="" type="checkbox"/>	Normal	Fault	Fault	3500	0
Step 7 <input checked="" type="checkbox"/>	Normal	Normal	Normal	500	0
Step 8 <input checked="" type="checkbox"/>	Normal	Fault	Normal	500	0

**Edit Test Type screen Autaware 9100**

This screen allows you to modify the default settings of the most common Line Leakage safety tests already configured in this software. When you first enter this screen you will see an "Agency" specification box, "Test Type" box and a "Description" box. Before making any changes be sure that the information in these three boxes is correct. This will ensure that you are modifying the correct default test.

Measuring Device: This box allows you to choose the measuring device as specified by Safety Agencies. Selections include Circuit A for UL 544 non-patient care, Circuit B for

UL 544 patient care, Circuit C for UL 2601 and IEC 601, Circuit D for UL 1563, Circuit E for UL 3101 and UL 1950 and Circuit F for the External Measuring Device.

**Probe Configuration:** This box allows you to modify your probe configuration that will change the position of your measuring device. Selections include measurement from ground to line, measurement from probe high to line and measurement from probe high to probe low. Clicking your mouse directly on the box will give you a complete text description.

**Delay Time:** This box allows you to adjust the duration of each individual test step from 0.0-999.9 seconds. The delay time is a global setting for all steps in the sequence.

**Step 1 - 8:** You can activate or deactivate each individual step by clicking on the box to the right of the step number.

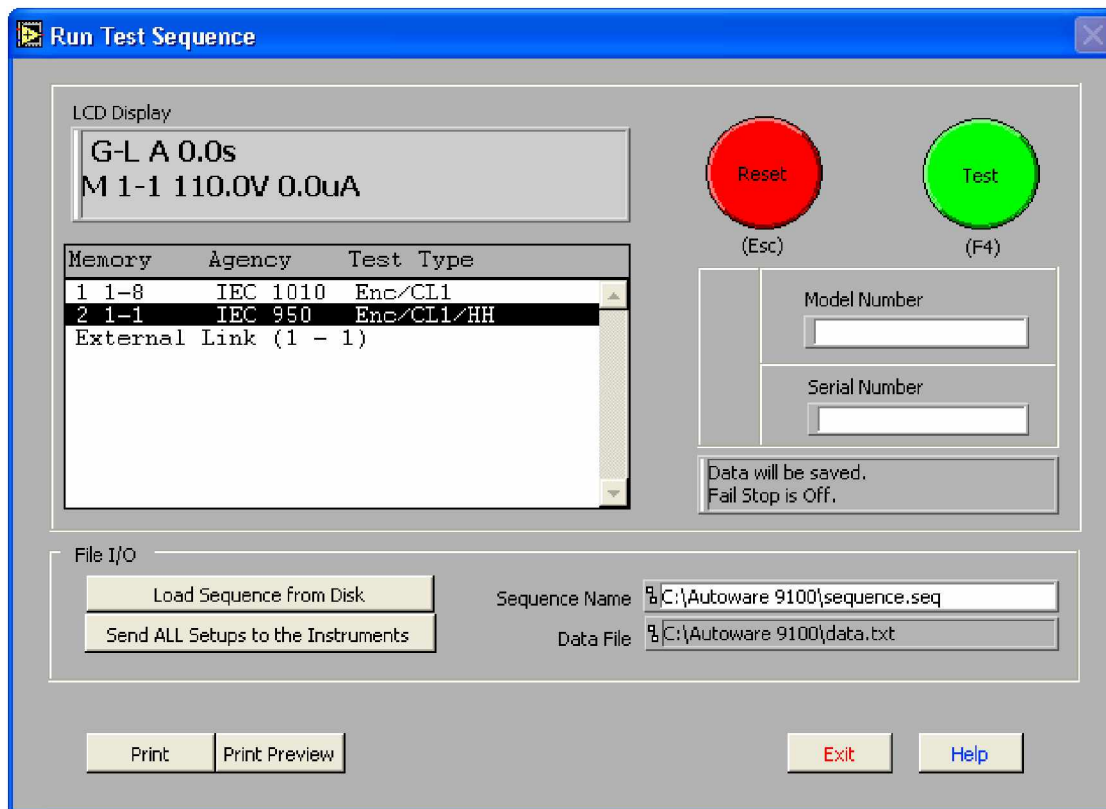
**Line Settings:** The line settings column allows you to configure the normal and fault conditions of the Neutral, Reverse (Polarity) and Ground for each step in the sequence.

**High Limit / Low Limit:** These columns allow you to set the current limit for each individual step in your test sequence. If the current limits differ from step to step, you must be sure that the "Use one High/Low Limit for all steps" box is unchecked. This selection should only be used if your current limit settings are the same for all tests in your test sequence.

After all changes have been made you can save your new setup by selecting the "Save" key in the lower left portion of the screen. The "Delete" key should only be used when you wish to delete an entire configuration.



## RUN TEST SEQUENCE



Run Test Sequence screen Autoware 9100

This is the screen where you can select and execute test sequences that you have already setup. The first step is to select which test sequence you wish to load. You do this by clicking on the "Load Sequence from Disk" key. A window will then appear where you can select the file you wish to load. After you have selected the correct file you then need to send the sequence to the LINECHEK by clicking on the "Send ALL Setups to the Instruments" key.

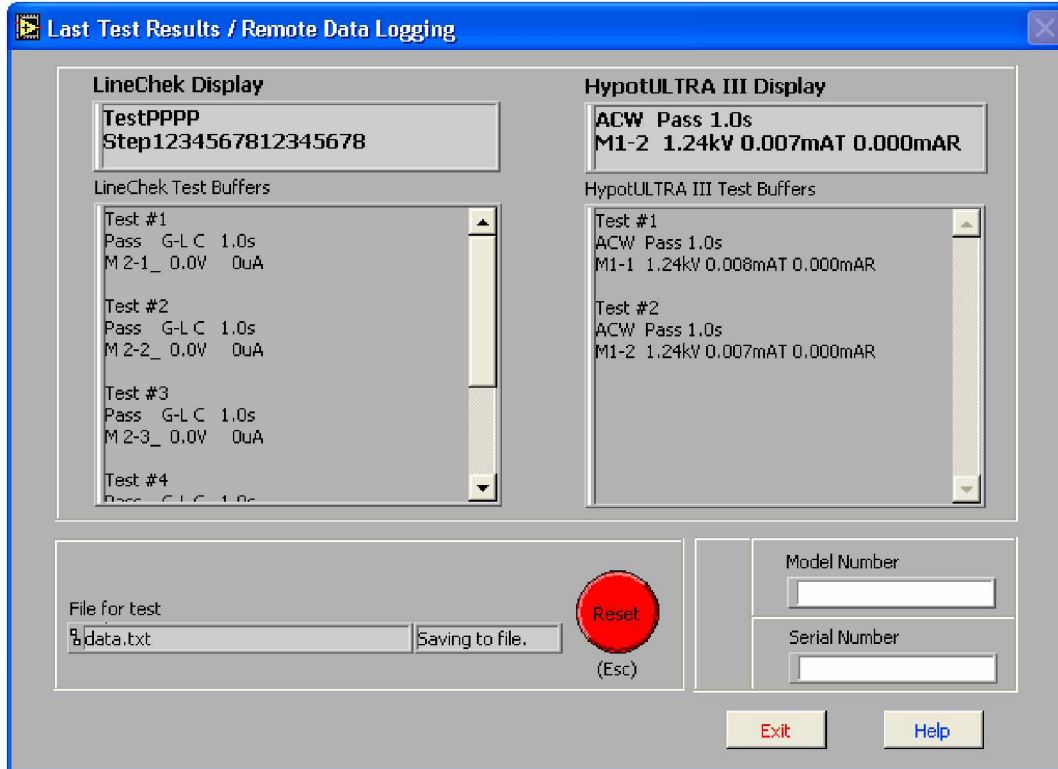
There are two information panels provided on this screen. The first panel displays the LCD of the instrument. This display will show the currently setup parameters for the test you are about to perform. Below this display are the actual agency tests that were selected in the "Setup Test Sequence" screen. To the right of this are RESET and TEST keys to initiate and reset tests. As a helpful reminder, this panel also shows whether you are saving data and if "Fail Stop" is on or off.

The second panel is for file I/O activities. Here, the file name and location of the file for the sequence being used may be accessed and is displayed. The second window provides the name and location of the file where test data is being stored if the user selected to save test data. If you are "Loading Sequence from Disk", be sure you click on "Send ALL Setups to the Instruments" key afterwards so the test sequences reach the instruments prior to executing a test.

This screen also has fields for Model and Serial number input. The data for these fields can be entered manually or automatically using a barcode scanner. To use the barcode it must first be activated from the "Barcode Scanner Setup" screen where the barcode can be enabled and the format can be configured. The "Barcode Scanner Setup" screen can be accessed from the "Setup System Parameters" screen. When the barcode has been enabled the section border around the Model and Serial Numbers will be labeled "Barcode Scanner". You may then scan Model Number and or Serial Number information before you initiate a test. Data will then be logged by model number and or serial number into the "Examine Statistics" screen and be recorded on the printed output.

Once all the selections have been completed you simply need to click on the "TEST" key to start testing. When the testing has begun the display will scroll the actual tests as they are being performed.

The "Print Preview" key will show the results that will be printed if the print key is selected. If the Exit key is selected from the print preview screen, selecting the Print key on the previous screen will still generate the print-out that was previewed. When scrolling to view any results that are off the bottom of the viewing area the control keys at the top of the screen will be off the viewable area. This is normal and you will need to scroll back to the top of the screen using the scroll bars to access these keys. The keys will operate at any location on the viewing screen

**LAST TEST RESULTS/REMOTE DATA LOGGING**


**Last Test Results / Remote Data Logging screen Autoware 9100**

This screen allows you to review the test results of a single test or a sequential test. The LINECHEK is designed with 16 "BUFFER" memories and HypotULTRA III is designed with 30 "BUFFER" memories, all of which store test results until the next test is executed. RUNCHEK does not have buffer memories within the hardware so up to 10 results are stored within Autoware software only. All buffers are cleared at the start of the next test cycle.

Each buffer represents a single test. For example, if a single test has been run, the test data will be stored and displayed in buffer #1. If you link 6 steps together and run 6 sequential tests then results from all 6 tests will be stored and displayed in the first 6 buffer locations.

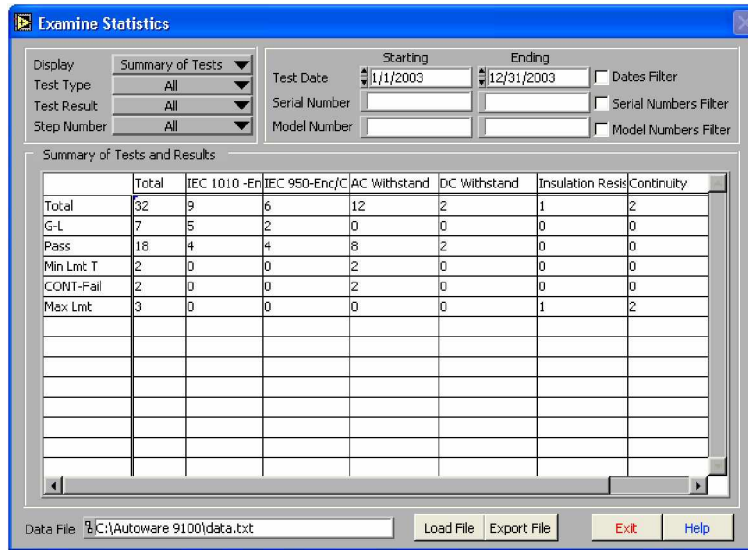
Note: If more than 30 steps have been connected on HypotULTRA III, then the 30 BUFFER memories within the instrument will be cleared after the 30<sup>th</sup> step. The buffers viewed on this screen will only indicate the last set of tests that have run after the first set or sets of 30 tests, therefore, no more than 30 results will be seen on this screen. The complete set of results will be recorded in the DATA STATISTICS file when the Data Saving feature has been enabled from the Setup Tests Screen.

This screen also has fields for Model and Serial number input. The data for these fields can be entered manually or automatically using a barcode scanner. To use the barcode, it

must first be activated from the "Barcode Scanner Setup" screen where the barcode can be enabled and the format can be configured. The "Barcode Scanner Setup" screen can be accessed from the "Setup System Parameters" screen. When the barcode has been enabled the section border around the Model and Serial Numbers will be labeled "Barcode Scanner". You may then scan Model number and or Serial number information before you initiate a test. Data will then be logged by model number and or serial number into the "Examine Statistics" screen and be recorded on the printed output.

### **Remote Data Logging**

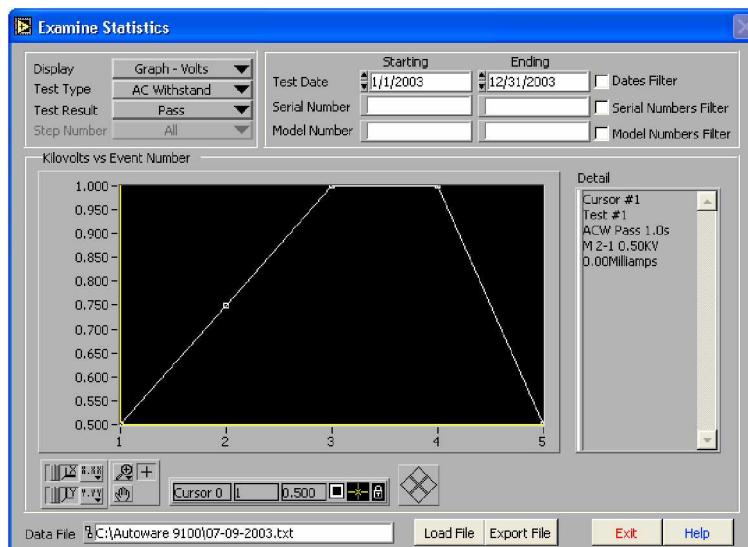
An important feature of this screen is that it provides the ability to activate tests remotely. This is valuable when you desire that an operator have a remote test system that may consist of a test and reset switch directly connected to the test system. Once test parameters have been stored in the memory, the operator only needs to START and RESET tests. All data logging and other activities are transparent to the operator. In addition, barcodes may be entered at this point. For more information on the REMOTE capability of these instruments see the instrument operation manual.

**EXAMINE STATISTICS**


**Examine Statistics screen Autoware 9100**

The statistics screen is where you will review all data logging activity. When you first enter this screen you will be prompted to choose a path and a file for review. Select the file you would like to review the statistics from and click OK. Again, it is recommended that you store all your saved data in a similar file format, extension and directory.

Once you have selected the data file, the system defaults to a "summary of tests" view of the test data as shown in the screen above. The current file's path and file name are displayed on the lower part of the screen for easy monitoring. You may also display selected information in graph format directly through the Examine Statistics mode in Autoware. This is done by selecting the test type, test result and step and then selecting the parameter you wish to graph in the display field.



**Dates Filter:** You may review test results within a certain time frame by checking the box labeled "Dates Filter". After selecting this box you must enter a "starting date" and an "ending date" in the appropriate fields. If no date range is specified, then the default is all date ranges and all data will be displayed.

**Serial Numbers Filter:** You may review test results within a serial number range by checking the box labeled "Serial Numbers Filter". After selecting this box you must select a "starting serial number" and an "ending serial number" in the appropriate fields.

**Model Numbers Filter:** You may review test results within a model number range by checking the box labeled "Model Numbers Filter". After selecting this box, you must select a "starting model number" and an "ending model number" in the appropriate fields.

**Load File:** Click on this key if you wish to view data from another file. It will reopen the file window. As in the previous case just select the path and file name you wish to review.

**Export File:** Click on this key if you wish to use another program to view or modify the data file. Exporting the data to another file will prevent possible corruption of the original data file. This export feature creates a tab delimited ASCII text file that can be read by other spreadsheet or word-processing programs and modified to the end users needs.

**Display:** By clicking your mouse on the downward arrow you can see a range of selections for viewing data on the test type which has been selected.

**Test Type:** Here, you select the type of test data that you wish to view depending upon the selected tests and model number of the instruments used. Selections may include, Line Leakage, Continuity, AC Withstand, DC Withstand, and IR test data.

**Test Result:** Here, you can choose to filter tests that resulted in pass or fail or choose to view all test results. These results can be presented in a detailed, a summary or a graphed format. Graphs are presented for all pass/fail statistics. The data is saved in a standard ASCII format so if you wish to graph your own results, the data file may be easily imported into any spreadsheet, word-processing program or database program.

**Step Number:** You can also select data from specific steps. This mode is particularly useful in viewing LINECHEK data if you know what type of test is associated with each step.

## Where to go if you need more Information

All versions of Autware include help screens that will provide essentially the same information that is included in this manual organized by screen. If you still have questions you can visit the Associated Research website at [www.asresearch.com](http://www.asresearch.com) or email us at [info@asresearch.com](mailto:info@asresearch.com). You can also contact technical support by phone at 1-800-858-TEST (847-367-4077 outside the U.S.), or by fax at 847-367-4080. We request that you have the following information ready when you call:

- ✓ The model number of the instruments that you are controlling
- ✓ The version number of the Autware you are using
- ✓ If applicable, we need the exact wording of any error message that you received
- ✓ The type of interface you are using (RS-232 or GPIB)
- ✓ If applicable, the make and model number of the GPIB controller card you are using
- ✓ The command you executed that caused the error and exactly when the error occurred