AVTS
Relay Test Modules

Figure 1. Setting Screen for Short, Medium and Long Reach Westinghouse KD-10 Relays

- Complete and ready-to-use test modules for both electro-mechanical and microprocessor-based relays.

- Modules are designed to completely test the relay to manufactures specifications.

- 1-Touch® Enabled test modules improves reliability and speeds testing time

- Provides fast and efficient testing of protective relays.

- Includes pictorial test connections for all tests.

- Graphical test editor for simplified test module editing.

DESCRIPTION

Relay test modules help Megger AVTS customers save time and money in automated testing of protection relays. Many modern microprocessor-based relays have a hundred or more settings. It makes testing the relay to any specific setting or groups of settings a real challenge, even for the most experienced test engineer or technician. With reductions in manpower, many customers do not have the time to create their own test modules. Therefore, Megger has developed, and continues to develop, relay specific test modules for AVTS customers.

Each test module provides user friendly features that make testing the most complex relays easy and fast. A connection diagram includes pictures of the test set connections to the relay under test, including relay terminal identification. Modules are designed to completely test the relay to manufactures specifications, including pass/fail or percent error indication. The user simply enters the settings that the relay is set for, and selects the desired tests from a menu, and Megger takes care of the rest. A 1-Touch Enabled module further simplifies the process by communicating directly with the relay entering the relay settings automatically. The AVTS database and report generator provides automatic record keeping.

APPLICATIONS

Each test module comes complete ready to test specific relays. Simply import the test module into the desired database and you are ready to go. The user would simply copy the test into the desired location, apply relay settings, and select the desired tests. Then save the results

and relay settings and move to the next relay. The AVTS Microsoft Access™ database will store the results for later retrieval.

For relays with multiple setting groups, use the AVTS test sequencer and test the relay to the desired setting group. The Setting Screen shown above in Figure 1, shows a pull down list for all possible ohmic reach settings for virtually all KD-10 relays. This provides a fast and easy means for the user to enter relay settings without accidentally keying in the wrong value. The test module will automatically calculate the appropriate reach values based on the tap settings entered, and calculate the appropriate test voltage and current values based on those settings. On the left side of the window in Figure 1 is a list of all the appropriate tests to completely test the KD-10 relay to the manufactures test specifications.
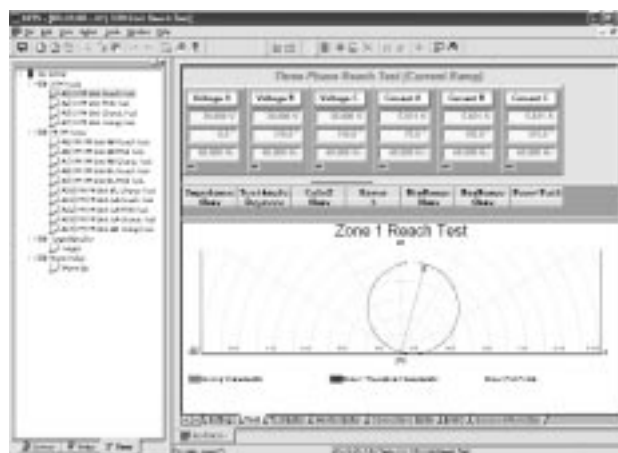

Figure 2. Test Screen for Three-Phase Reach Test on KD-10 Relay

Figure 2 shows an example of the three-phase reach test in progress, with actual and theoretical results displayed simultaneously.
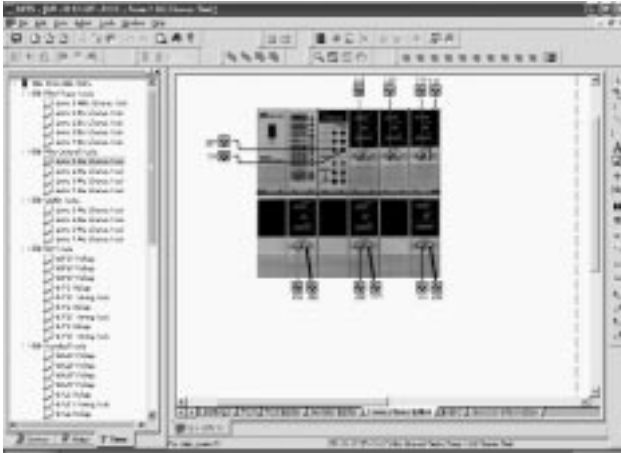

Figure 3. Test connections for SEL-311C Impedance Relay

Figure 3 shows test connection for each output, referenced to the relay's terminal numbers. Other features include special instructions to the user, found in the General Information Screen.

Figure 4. Test Notes for the SEL-321Relay

For example, in Figure 4, the user is instructed to enable the proper logic output for the settings in the relay, and warned to make sure that the Quad settings are disabled when testing the Mho characteristics in the SEL-321 relay.

FEATURES AND BENEFITS

AVTS Test Modules have many unique features. Some of these are:

- No programming skills required. Makes software easy to use.

- Easy setup of test values. This saves time and money.

- Test to actual time current curves, which can are scanned into the program. Test old electromechanical relays using manufacturers' time-curves.

- 1-Touch® Enabled modules speed testing time and improves reliability by downloading settings automatically into AVTS.

- Test Modules run in AVTS software, which runs under Windows® 95/98/2000/XP® operating systems. Operates on the most popular PC operating systems in the world.

- Graphical User Interface displays operating characteristic of the relay under test, the actual test points and the phasor quantities, while the test is being performed. Provides user with a visual monitor of test values and reduces testing time.

- Automated 'Pass/Fail' or percent error features provides faster test results evaluation. Tests relay to manufacturers specifications. Reduces human error and reduces test time.

- The Test Connections Editor provides a "picture" of test connections. A picture is worth a thousand words. Helps reduce incorrect connections and reduces test time.

- Some Test Modules provide pre-fault and fault conditions for dynamic testing. Many new relays today require a prefault condition be applied to the relay prior to applying fault values. This provides a more accurate test.

- Test modules are available for electromechanical, solid state and microprocessor-based impedance relays. Provides capability to test the most complex relays found in utility transmission systems today - new or old.

Availability

Megger has already developed and made available to AVTS users a large number of test modules representing a wide cross section of different relay manufacturers. Test modules are available for relays manufactured by ABB, Alstom, ASEA, Basler, Beckwith, General Electric, GEC, ITE, Multilin, SEL and Westinghouse. Price and availability vary depending on complexity and/or popularity. To see if Megger has a module for your relay testing needs contact your local Megger representative, or visit our website for a complete listing.