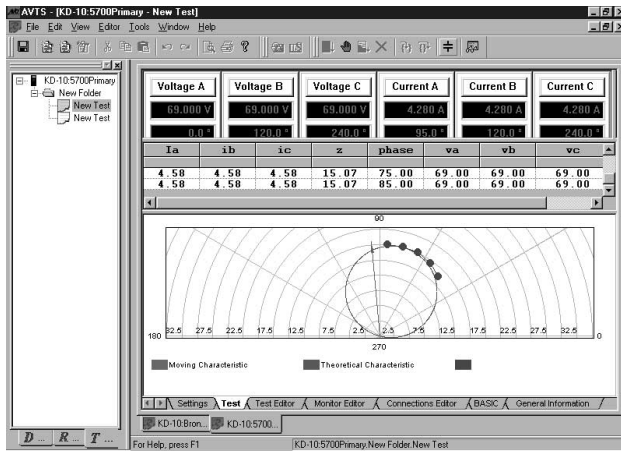


AVTS™

## Advanced Visual Test Software V1.4



- **New 1-Touch®; total automated testing of microprocessor-based relays.**
- **Test Module Wizard makes creating a new test easy. No programming skills required.**
- **Import PulseMaster Test files to run in the new AVTS test environment.**
- **Scan into AVTS a time current curve or any relay characteristic and verify Pass/Fail operation against that characteristic.**
- **View and replay Digital Fault Recordings or EMTP/ATP simulations that are in the COMTRADE file format.**

## DESCRIPTION

Introduced by Megger, AVTS™, Advanced Visual Test Software, is the culmination of over 19 years of automatic relay testing experience. It is a totally new concept in relay testing software. AVTS is a new Microsoft® Windows® 95/98/NT®/2000/XP software program designed to manage all aspects of protective relay testing using the PULSAR® Universal Test Set.

The graphical user interface is the most powerful, yet easy to use feature of AVTS. Most tests can be built graphically without the use of traditional programming.

## APPLICATIONS

The traditional steady-state tests are easily performed with AVTS by simply applying test quantities to the device under test and automatically varying the current, voltage, phase angle or frequency.

Dynamic tests can easily be performed using AVTS. The dynamic test includes setting a prefault condition and allowing the software to automatically test/search for the operating characteristic of the relay by selecting one of several available methods. Fault types are selected from a pull-down window.

Operating characteristics for virtually any type of relay are easily defined using Mho circles, Lenticular, Tomato characteristics, or a combination of lines, line and slope, time and amplitude, calculated value or theoretical object (a time-current curve may be scanned into the program).

The Test Screen, in Figure 1, shows test values, both theoretical and actual results, all on one screen. The user

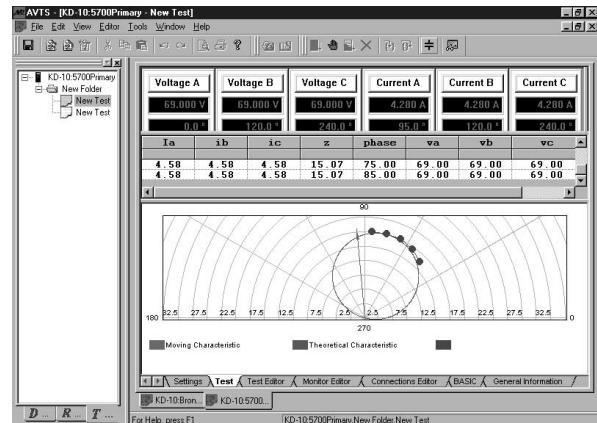


Figure 1. AVTS Test Screen enables you to view test values (both theoretical and actual) on one screen.

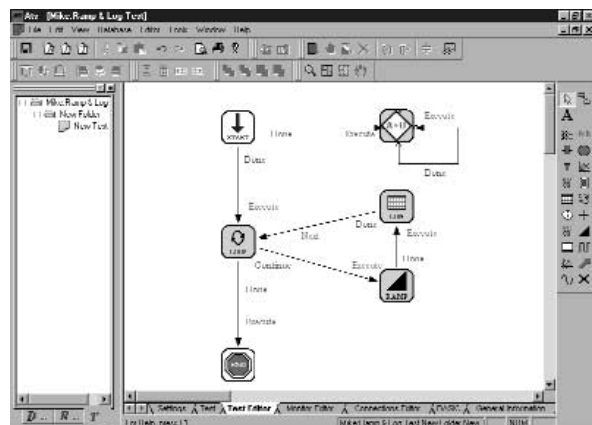


Figure 2. Test Editor Window feature allows you to construct a test by choosing certain test function icons and easily connecting them using the mouse.

may select any or all values displayed as well as calculated values. The ability to monitor contact(s) status is also possible.

The real power of AVTS is in the Test Editor window. No more test macros to write or edit. Instead, the user now selects from a variety of icons representing various test macro functions. For example, in Figure 2, certain icons are selected and connected using the mouse. The software takes care of the rest. No more theoretical characteristic macros to write either. Simply click on the appropriate icon and drop into the test window. What may have taken days or weeks to “write” using basic programming now takes only minutes!

Powerful graphics are also available to show test connections, Figure 3.

New, 1-Touch® control provides the capability to communicate to a microprocessor-based relay, download the relay settings into the AVTS settings screen and automatically test the relay to those settings without intervention by the test technician. This saves valuable test time and eliminates human error.

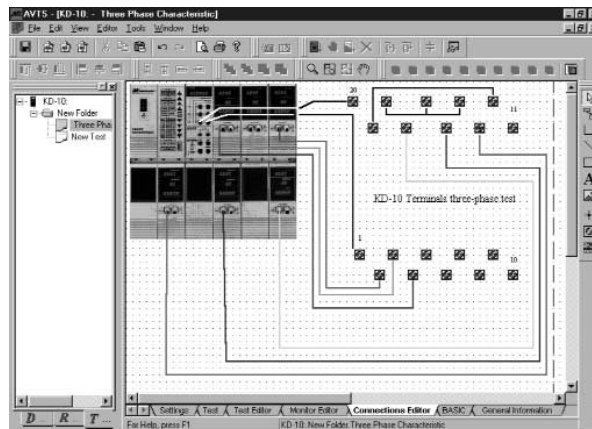
Traditional steady state and dynamic (multi-state) testing methods implemented using AVTS may be sufficient for most applications. However, there are cases where specific relay applications, relay design characteristics or relay misoperations need to be analyzed. Transient testing of protective relays provides the best way to fully evaluate new or existing protective relays or protection schemes. AVTS offers the capability of an open-loop power system simulator without the high cost. Tests may be viewed and executed from the DfrWaveView Screen. Individual channels may be viewed or combined as shown in Figure 4.

Online Vector Control allows the user to use the mouse to control single-phase, two-phase or all three phase voltage and current amplitudes and phase angles. The user clicks on the vector(s) and “drags” the vector(s) to the desired values, Figure 5.

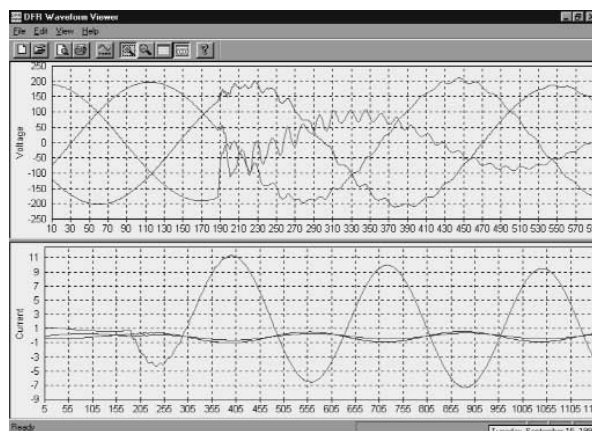
The database is Windows Access compatible. Data is saved in a conventional tree format to facilitate ease of use, Figure 6.

In addition, relay settings may also be imported from other databases. For example, relay settings from the Aspen Relay Database® can be seen in Figure 7.

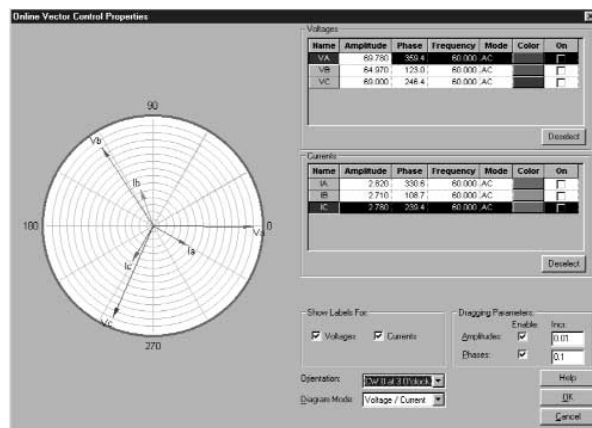
New, expanded reports selection and viewing provides customers the ability to individually select and delete test reports and relays from databases, such as when a relay is removed from service.



**Figure 3. Test Connections Editor allows you to graphically illustrate individual test connections to check setup before running the test.**



**Figure 4. The DFR Waveform Viewer provides the flexibility to view individual voltage/current channels or a combination of those together.**

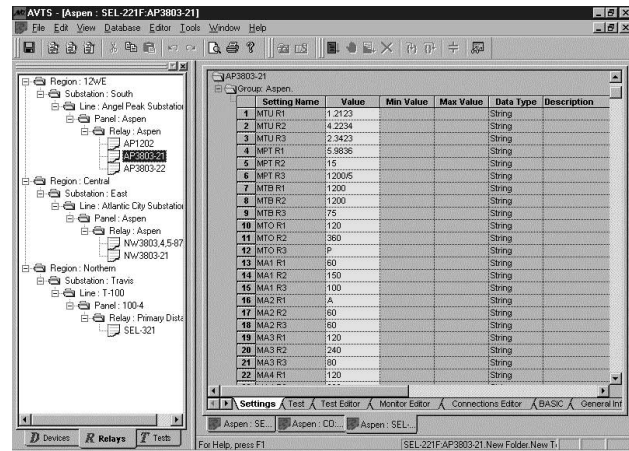


**Figure 5. Online Vector Control function allows you to click on a vector(s) and drag the vector(s) to the desired value.**

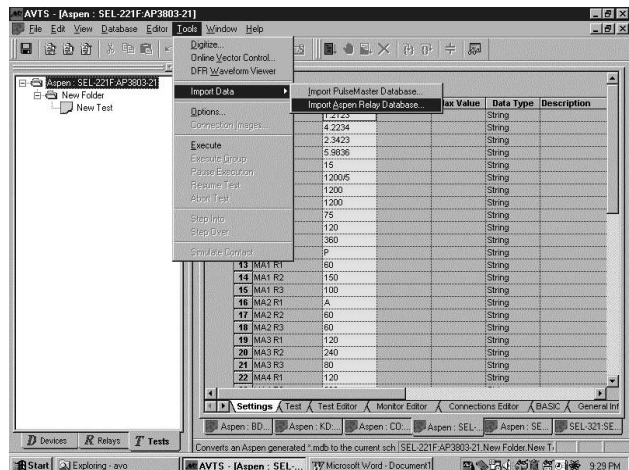
## FEATURES AND BENEFITS

AVTS has many unique design features. Some of these are:

- 1-Touch® enabled modules speed testing time and improves reliability by downloading settings automatically into the AVTS Settings Screen.
- No programming skills required. The software is easy to use with minimal training required.
- Easy setup of test values. Set test values prior to going into the field. This saves time and resources.
- Import PulseMaster Test files to run in the new AVTS test environment. PulseMaster currently has over 200 specific relay test files available. Saves time and money. Continue to test as you did previously.
- Test Module Wizard. Makes creating a new test easy, which saves time and money.
- Test to actual time current curves, which can be scanned into the program. Test old electromechanical relays using manufacturers' time-curves. No time tables to create, saves time and money.
- View and replay Digital Fault Recordings or EMTP/ATP simulations that are in the COMTRADE file format. Turns test system into a power system simulator. Evaluate new relays or troubleshoot older relays.
- 32 bit program runs under Windows® 95/98/NT®/2000/XP operating systems. Operates using the most popular PC operating system in the world. Comes on most PC's today.
- User defined organizational structure database. Customize your database to meet your needs.
- Import Aspen Relay Database®. Import relay settings fast. Reduces human error. Allows user to test relay per actual settings.
- Barcode reader option. A barcode reader can speed up the testing process and reduce human error by automatically recalling the relay test settings into the test screen.
- User defined custom reports available. User gets printouts in desired format.
- Graphical User Interface displays operating characteristic of the relay under test, the actual test points and the phase or quantities, while the test is being performed. Provides user with a visual monitor of test values and reduces testing time.
- Multiple test module windows may be opened simultaneously for ease of copy, cut and paste applications. Saves time while creating new test modules.
- Automated 'Pass/Fail' feature provides faster test results evaluation. Reduces human error and reduces test time.
- A GUI Test Connections Editor provides a "picture" of test connections. A picture is worth a thousand words. Helps reduce incorrect connections and reduces test time.



**Figure 6. AVTS is Windows Access compatible with data saved in a conventional tree format for ease of use.**



**Figure 7. Relay settings are easily imported from other databases such as Aspen®.**

- Fault Type is easily selectable for performing three-phase, phase-to-phase, single-phase-to-ground or phase-to-phase-to-ground tests. Easy test setup reduces testing time and provides a better test.
- User can easily set pre-fault and fault conditions for dynamic testing. Many new relays today require a pre-fault condition be applied to the relay prior to applying fault values. This provides a more accurate test.
- User can test 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.
- Virtually any relay operating characteristic can be drawn using Mho Circles, Lenticular, Tomato, lines, lines and slope or time-current curve features. Saves time and money.
- Software furnished on a CD with a software key that connects to your PC parallel port. Connect your printer cable to the key and use your printer as normal.

**CUSTOMER SUPPORT**

All relay test software developed by Megger is licensed to perform as described in our literature or software user's guide for a period of 90 days. After 90 days Megger offers an extended service support program for any purchaser for a nominal charge. These are the benefits you receive from the extended service support:

- Special dedicated toll free number for software and hardware technical assistance.
- Updated program releases free of charge for one year.
- Ongoing access to professional programming assistance.

**MINIMUM PC SYSTEM REQUIREMENTS**

- Personal Computer Pentium (133 MHz) or better
- Microsoft Windows® 95, 98, NT®, 2000 or XP
- CD ROM drive
- 16-MB RAM minimum, 32-MB recommended
- 800 X 600 resolution color monitor
- Microsoft Access® 97 or later version (required for PulseMaster file conversion only).

**ORDERING INFORMATION**

Item (Qty)	Cat. No.
AVTS	10091P
<b>Extended Software Support Program</b>	
1 to 2 users	10098
1 to 5 additional users	10097
6 or more additional	10096