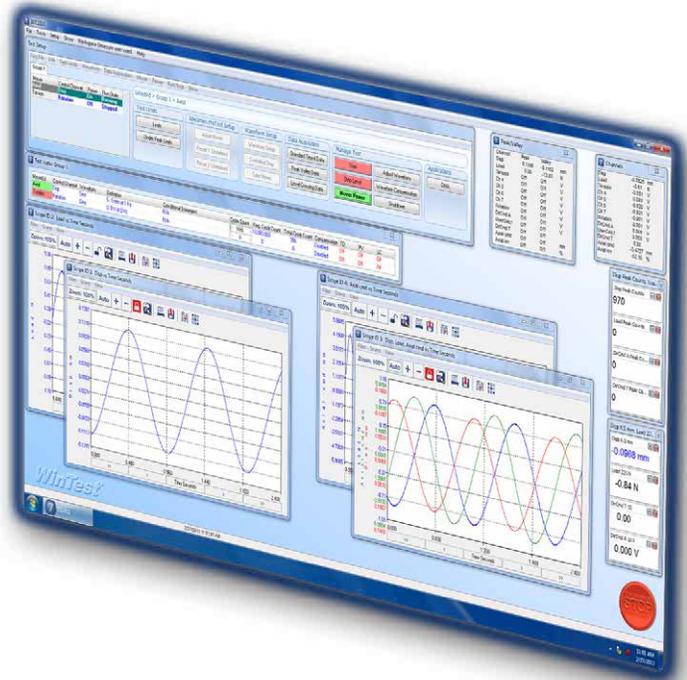


# ElectroForce® Series 7 Software

## Easy-to-use, Intuitive Software Advanced Testing Capabilities

ElectroForce Systems Group is pleased to announce the availability of version 7.2 of its Industry-leading software for ElectroForce® test instruments. Research and product development organizations today are under more and more pressure to improve their testing productivity, and ElectroForce has focused its efforts on implementing new ease-of-use and applications-oriented capabilities to address that critical need.

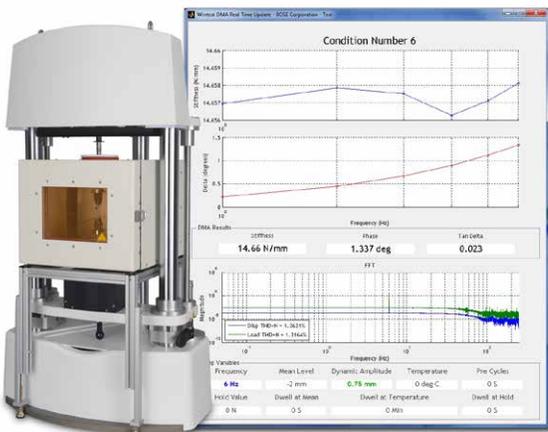
ElectroForce Series 7 software incorporates a new version of the WinTest® control system and an accompanying new release of Dynamic Mechanical Analysis (DMA) software. The software is compatible with the Microsoft Windows® 7 operating system, allowing customers to benefit from its new features and improve the efficiency of their testing programs.



## WinTest® 7 Controls

WinTest controls include advanced WinTest software and PCI control electronics to provide data acquisition, waveform generation and instrument control in one comprehensive package. WinTest 7 software, which runs on a desktop personal computer under the Microsoft Windows 7 environment, features new user windows that better organize test flow and test setup while providing additional advanced capabilities.

WinTest 7 controls incorporates new conditional branching functions that allow the creation of complex test programs, providing more intelligent test control. In addition, the software includes an optional Advanced Security Suite to facilitate compliance with current industry standards for data security in the medical device industry and product development.



## WinTest 7 DMA Software

A new version of Dynamic Mechanical Analysis (DMA) software is available with the release of the WinTest 7 controller. ElectroForce® DMA software provides a flexible platform for advanced viscoelastic property measurement for a variety of materials, including engineered materials, such as elastomers and composites as well as biomaterials. WinTest 7 DMA software provides improved test control and analysis, including online test status graphics and better test metrics, enhancing the capabilities of ElectroForce test instruments for dynamic mechanical analysis applications.

# Overview of WinTest® 7 Controls

The latest version of WinTest® controls has several new ease-of-use and applications-oriented capabilities to address test laboratory needs for added efficiency and faster results. WinTest 7 software is compatible with and uses many of the new capabilities of Microsoft's Windows 7 operating system, allowing customers to benefit from the new capabilities of Windows 7.

## What's New in WinTest Version 7.2

WinTest 7.2 controls has several new features and benefits to improve testing productivity, including:

- Power on/off and mode switch stability checks ensure the stability of our systems over a wide range of test conditions
- Multiple instances of the on-screen scope provide the ability to view complete test status
- Easy docking of meters provides consistent sizing and easy grouping of meters
- Ability to save and open existing test layouts (scope and meters) provides consistency of the user interface between test configurations
- New, improved scope shortcut icons provide intuitive adjustment of the scope content
- Runtime status displayed by test indicator lights helps visualize the run state of select test systems
- Force measurement acceleration compensation with phase correction of acceleration induced errors

## Test Setup Window

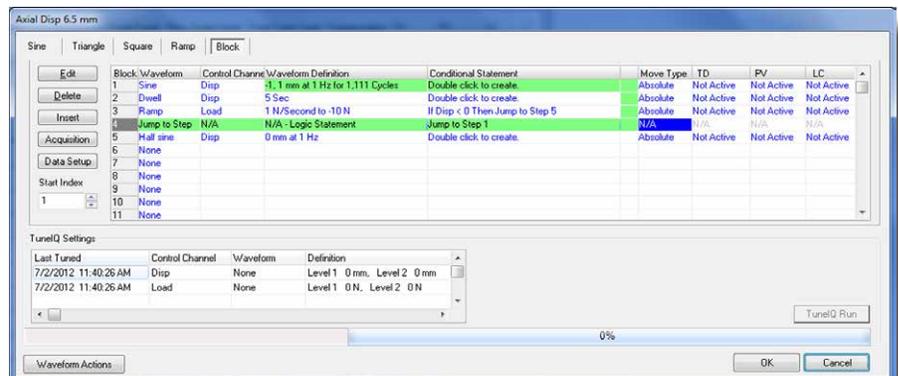
Through a redesign of the core WinTest software and an innovative Test Setup window, users can now focus their efforts on the essential steps to create an efficient test program. The new Test Setup window organizes the workflow steps to set up and run a test, allowing users to have a simple step-by-step reference to make sure that a test is properly configured. For occasional users, the setup window provides a quick-start checklist approach that improves their productivity and helps them produce higher quality test protocols.



## Conditional Branching Capabilities

Many tests can benefit from the ability to change the sequencing of test protocols, or to change loading profiles based on measured conditions. To address this need, conditional branching features have been added to WinTest 7 software. This type of intelligent test control can result in more productive testing as specimen or test conditions change.

An IF-THEN-ELSE function and a GOTO function have been added to the Block Waveform module in WinTest software. Protocol changes can be made based upon channel value, channel amplitude value, channel mean value, cycle count, or digital I/O state. Resulting actions include a jump to a specified program step, or a decision to carry out a system limit action. This capability along with a Repeat function allows the creation of complex test programs, greatly enhancing the capabilities of WinTest software.



# Amplitude Control Performance Improvements

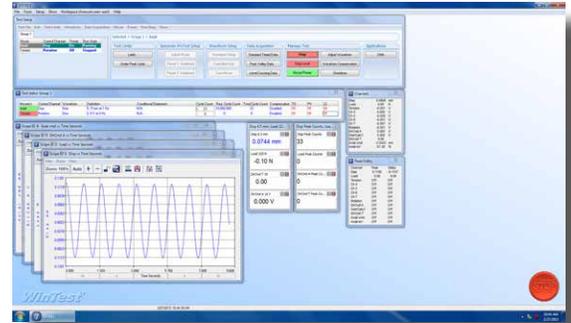
The WinTest® real-time controller has been enhanced to allow over-programming of the amplitude magnitude while in test amplitude control, allowing increased dynamic performance to be achieved from ElectroForce® linear motors. This capability provides significant extension of the dynamic response of ElectroForce test instruments for periodic test waveforms.

## Relative Move

This feature adds the capability to program the WinTest function generator to output a waveform with values relative to a value in another control mode. The test system can, for example, now be programmed to apply a preload in load control and then cycle in displacement control a relative amount about the position resulting from the preload. This eliminates the need to know the absolute position value after the preload is applied. The relative move capability can greatly simplify test setup and execution, leading to more efficient test programs.

## Enhanced Test Layout

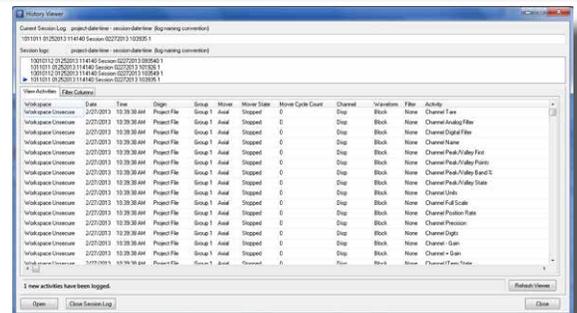
WinTest 7.2 software now allows multiple instances of the on-screen scope to provide the ability to view the test status and progress as a function of different time base (total test progress in addition to current test condition), or as force versus displacement (hysteresis loop) or different control channels (force or torque or temperature, etc.). ElectroForce has also added easy docking of meters to provide consistent sizing and easy grouping of meters within the WinTest project window, and the ability to save and open existing test layouts (scope and meters) to improve the consistency of user interface between test configurations.



## Enhanced Test Status Monitoring

Mover(s)	Control Channel	Waveform	Definition	Conditional Statement	Cycle Count	Req. Cycle Count	Total Cycle Count	Compensation	TD	PV	LC
Axial	Disp	Sine	5.5 mm at 1 Hz	N/A	1,767	10,000,000	1,767	Disabled	Off	Off	Off
Torsion	Rotation	Sine	0.0 V at 0 Hz	N/A	0	0	0	Disabled	Off	Off	Off

The Test Status window in WinTest 7 software has been redesigned to provide more comprehensive information during test execution. This new window also provides the capability to open up another window that will display the status of an executing Block program in real-time, allowing the user to see graphically what step the program is currently executing. The new status window also provides information about the data acquisition setup parameters while the system is running.



## WinTest 7 Advanced Security Suite



Data security and integrity of test files is an increasing concern for testing departments since the loss of test results could jeopardize an entire testing program. To address this need, several security-related capabilities have been added to WinTest software. User login or authentication, with automatic timeout/ lockout, had been added to the software for access security, and an additional component, history tracking, allows for critical audit trail traceability if there is a specific concern. File system security has been implemented as well to protect user test data. These features and others enable organizations to implement laboratory protocols for either internal process requirements or to be compliant with current device industry standards such as 21 CFR Part 11.

# WinTest<sup>®</sup> DMA Software

A new version of the WinTest<sup>®</sup> Dynamic Mechanical Analysis (DMA) software is also available with the release of the WinTest 7 controller. DMA software from ElectroForce Systems Group allows the user to easily define a series of test conditions that are then systematically applied to a test specimen. These test conditions allow the user to explore changes in material or component properties with respect to a variety of frequency, amplitude or temperature parameters.

WinTest 7 DMA software provides improved test control and analysis, including an online test status display that enhances the capabilities of ElectroForce<sup>®</sup> test instruments for dynamic mechanical analysis applications.

## Improved Test Control

WinTest 7 DMA software utilizes improved amplitude control algorithms that provide better stability for a variety of test specimens. The DMA test controller provides a gradual change of amplitude from one test condition to another to better handle specimen conditions.

## Online Test Status Graphics

A new online test status window has been added to provide calculated information such as modulus, stiffness and tan delta as each test condition sequence completes. The test status window is similar to the post test analysis format, and provides valuable information as the DMA test is progressing. Based on the information shown, it can be confirmed that the test is proceeding as planned.

## Improved Analysis

An improved algorithm for Fourier analysis provides better resolution, thereby providing a more accurate determination of material phase and amplitude in response to applied test conditions. These parameters are critical for accurate and repeatable material property characterization, increasing the quality of property analysis.

## Better Test Metrics

During the DMA test, it is important to confirm that the quality of the control and measurement is sufficient to provide reliable material property data. As the test is progressing, measurements of the true harmonic distortion of load and displacement are periodically calculated to provide an indication of the quality of the excitation and measurement.

The capabilities in WinTest 7 DMA software are focused at improving the productivity of a variety of DMA test applications. Every step of the way, valuable information is provided to confirm that the DMA test is progressing in a proper manner. With these on-line measurements, the DMA software enhances the ability of ElectroForce<sup>®</sup> test instruments to serve as a versatile tool for dynamic mechanical analysis.

