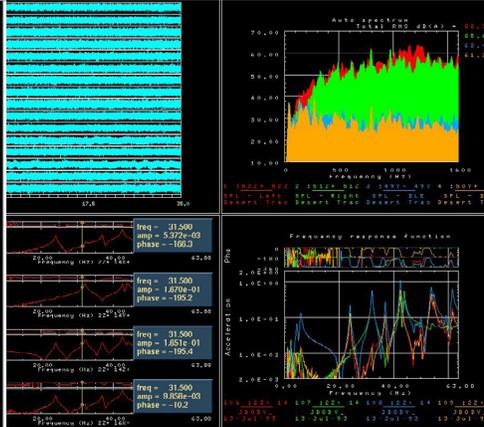




DATA SHEET



Test for I-DEAS (Version 6.4)

THE MOST COMPLETE SOFTWARE SOLUTION FOR
LARGE SCALE NOISE AND VIBRATION TESTING

APPLICATIONS

- Acoustic Analysis
- Shock Testing
- Modal Testing
- Rotational Machinery / Order Analysis
- High speed data measurements

FEATURES

- Spectral Analysis
- Digital Filtering
- Real time data displays
- Previewing live data without recording
- Frequency Response Measurement
- Modal Analysis
- General Data Manipulation & Visualization
- Exporting live interactive graphs and data into MS office documents
- Overlaying test and analysis data
- Correlation of Modal Test Results with Finite-Element Predictions
- Fatigue Life Estimation
- Incorporation of MS Visual Studio (VB, VC++, etc) for more complex, or bespoke automation projects

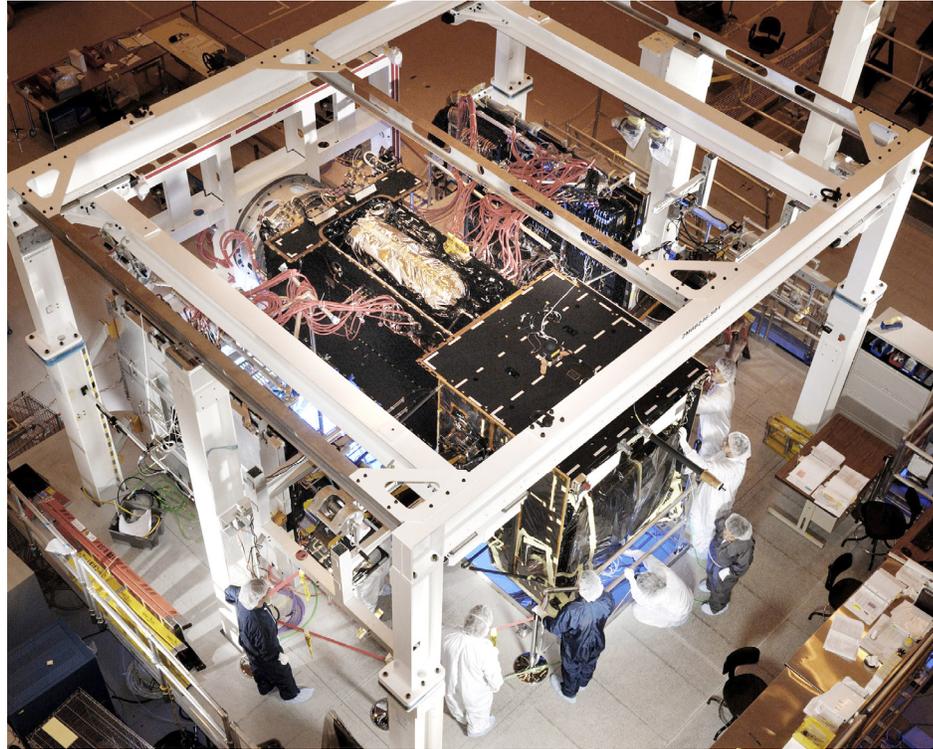


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Specifications contained within this document are subject to change without notice

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OVERVIEW



The substantially upgraded Test for I-DEAS is a comprehensive software suite of powerful tools for measuring, managing, processing and analyzing NVH data in large scale dynamic test environments. In combination with VTI's SentinelEX data acquisition hardware, these specialized tools seamlessly interact to cover a broad range of applications for measuring, understanding and controlling the noise, vibration, and structural integrity of products such as ground vehicles, aerospace structures, industrial machinery and consumer products.

Test for I-DEAS empowers engineers to perform the most sophisticated analysis and processing of test data in the noise and vibration industry and continues to evolve to meet the latest challenges and innovations in the NVH domain. This powerful software package extends its seamless integration to VTI Instruments' latest innovations in NVH test, the EMX-43xx, EMX-42xx and the EMX-1434 PXI Express (PXIe) High Speed DSA Hardware. Test for I-DEAS supports VTI's EMX-2500 LXI controller, allowing for system communication by Ethernet and unmatched flexibility in distributing the data acquisition systems in close proximity to structure locations under test. Measurement data is synchronized through the IEEE-1588 standard for a seamless distributed measurement environment.

With hardware sampling rates up to 625 kSa/s and 24 Bit resolution on a modular PXI Express (PXIe) platform, VTI Instruments leverages the fielded and proven power of Test for I-DEAS software to provide NVH professionals with the tools to specialize in nearly every domain of noise and vibration testing with a common integrated hardware/software solution.

Designed for nearly every NVH analysis and test discipline, Test for I-DEAS is unique in integrating finite element results display, pre and post model verification with test results, and direct measurement capability under a single software package. Users are able to examine mathematical model results, optimize reduced test models, and acquire test data all in the same software environment for achieving better results in less time.

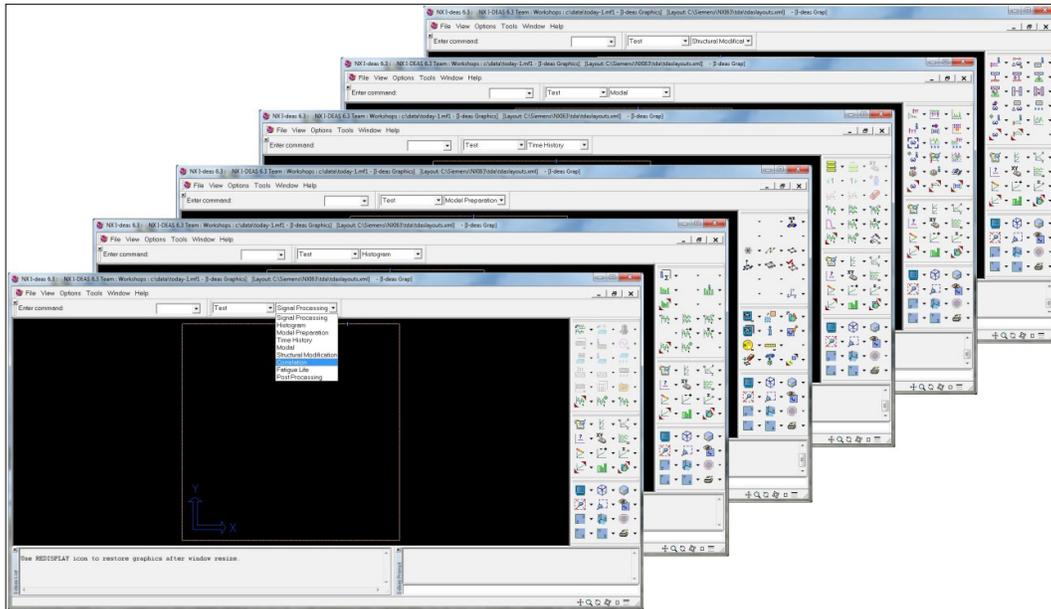
Test for I-DEAS software is available in modular packages, each consisting of modules designed to address different types of noise and vibration test applications. As requirements increase, modules can be added to extend functionality. Test engineers are able to pick and choose the features and functionality they require using a modular approach. VTI's combined hardware and software offering for measurement, data analysis and control, establishes one of the most comprehensive and flexible solutions for DSA testing available

LATEST UPGRADE HIGHLIGHTS

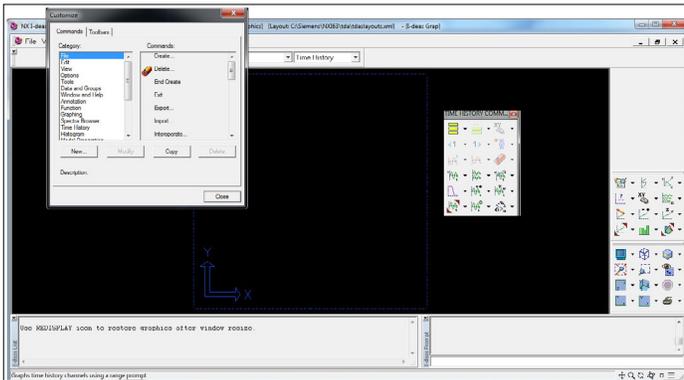
- Support for Windows 8
- Addition of the Shape and XY Browsers. These allow rapid display of functions and mode shapes. The XY Browser provides a comprehensive filter to allow selection of a sub-set of the loaded functions and both tools support copy and paste of active displays into MS Office documents. These displays can be manipulated on any system after installing the free viewers.
- The front-end simulator has been enhanced to support simulation of sine and random inputs as well as using data from a supplied time history file. A single channel in the time history file is mapped to multiple input channels if there are fewer channels than the simulator is using. This allows a test set-up to be defined and simulated without having a front-end attached, making more effective use of time in the lab.
- Improved real time monitoring. The real time monitoring has been upgraded for improved performance and the addition of layouts optimized for wide-screen monitors.
- Logging of overloads. During a long data acquisition overload data can now be logged on a channel and frame basis for all monitoring modes.

INTUITIVE INTERFACE

I-DEAS utilizes innovative user-interface techniques to ensure the feature-rich software controls are intuitively presented. Only the icons required are displayed along with pop-up descriptions activated as the mouse is rolled over them. Icons are grouped into task families for an intuitive and productive user experience. Whether an expert or a beginner the intuitive I-DEAS software has been designed to empower engineers to quickly get up and running with test and analysis.



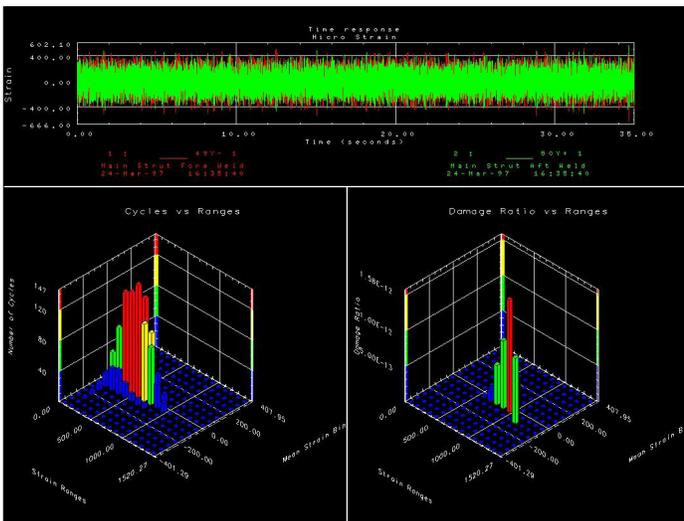
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FULLY CUSTOMIZABLE USER INTERFACE

I-DEAS offers a customizable user interface which allows engineers to work in exactly the way that best suits the work they are doing. Icons can be undocked or new icons added to docked locations, and entire new menus and sub menus can be created. All this customization can be saved as an XML file giving users the added bonus of multiple user pre-set screens for multiple analysis applications.

As is often the case with large complex tasks, repetitive actions are commonly required by the user. From changing multiple graph colours to renaming a complete list of transducers, this process can be tedious and time-consuming. However, with Test for I-DEAS, keystrokes and button presses can be recorded in a macro and replayed to make the changes automatically. This greatly reduces time and improves productivity.



ADVANCED POST-PROCESSING FEATURES AND EASE-OF-USE

- Designed for intuitive control and analysis using time history data, real-time displays, intelligent forms, and geometry displays.
- Very large time history recordings can be viewed and analyzed in Test for I-DEAS. This gives system engineers the ability to locate events and test conditions by viewing data in a single display. This ability to work with large time histories can save time and allow users the ability to quickly go to sections of data for quick analysis.
- Filtering options include band pass, band reject, high pass, low pass, multi-pass band, finite impulse response, and resampling. Windowing options include Hanning narrow, Hanning Broad, Flattop and Exponential Decay. Math operations allow Hanning, Hanning Complement, Flattop Exponential and Force windows.
- It is also possible to modify the time history sample rate, creating files that have the same total length but with a greater or lower number of sample points

REAL-TIME DISPLAYS FOR RECORDED "TIME HISTORY" DATA

Test for I-DEAS software uses the same fast displays as used in real time capture for the evaluation of "Time History" data files with the added functionality of fast data displays for: time, windowed time, spectra, time and spectra, and max/min levels.

- CALCULATED SHOCK RESPONSE.

Using any part of the large time history acceleration data, I-DEAS can calculate shock response including absolute acceleration, composite, frequency range, linear, log, max/min, octave, primary, relative displacement, and third octave.

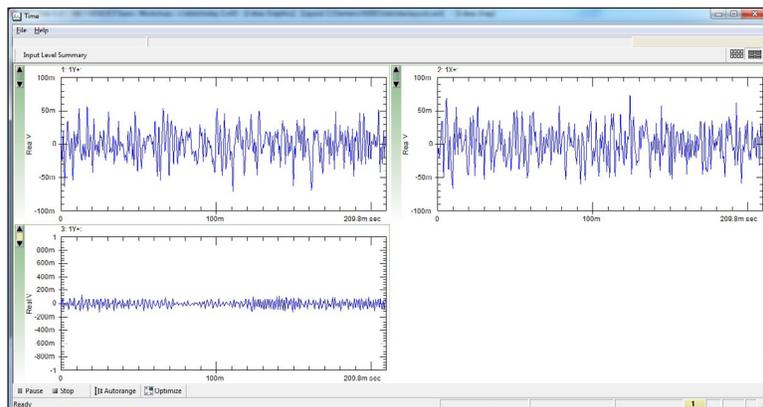
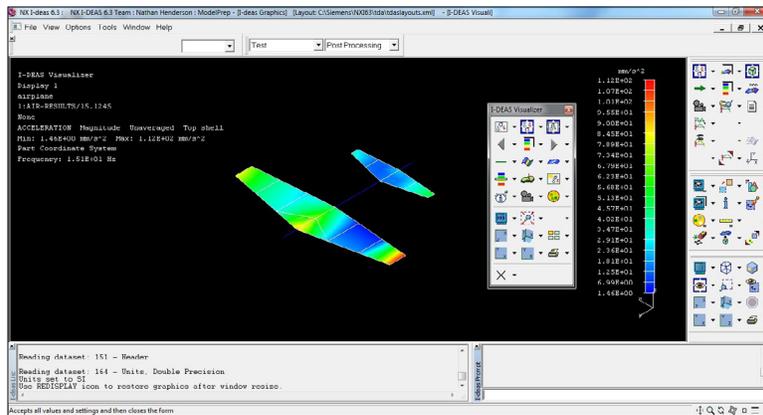
- STRIP CHART DISPLAYS.

Large multichannel time histories can be viewed and isolated by zooming in; this can also be done by splitting the time history data into user controllable frames and then viewing the time history data at a specified location or on a frame-by-frame basis. There is also the option to search the frames for a user defined event, giving engineers an efficient and convenient way to view recorded data.

- FAST ANIMATION OF MODELS

When geometry based data is required, I-DEAS has powerful features that make entering, manipulating, and presenting this data very efficient. A physical view of what's happening with a structure is often the best way to present data. With the options of exporting images and animations along with data and graphs I-DEAS makes distributing results very easy.

Features include: next mode while animating, flip phase while animating, transient animation, multi-axis deformation, multiple view ports.



PACKAGES

Test for I-DEAS is offered as several packages as well as granular modules to meet specific and flexible requirements:

1. Basic Signal Processing Package
2. Sine Signal Processing Package
3. Advanced Signal Processing Package
4. Basic Modal Package
5. Advanced Modal Package
6. Reporting Package

All measurement packages include a foundational Core Test Module providing display, icon driven interface, data management and signal processing capabilities. All packages also come with a Front End Driver Module, the device driver which interfaces VT143x and EMX series hardware with Test for I-DEAS.

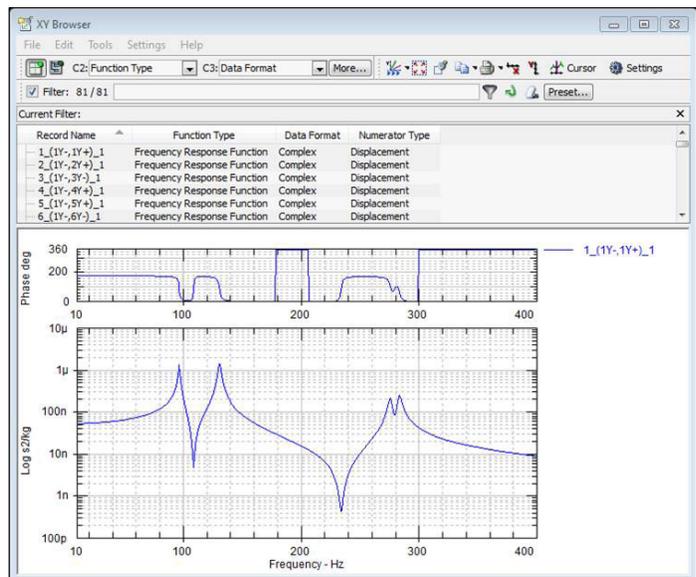
BASIC SIGNAL PROCESSING PACKAGE

MODULES:

1. Core Test
2. Stationary Processing
3. Transient Processing
4. Front End Driver (Either VT143X or EMX)

The Stationary Processing module provides test engineers with comprehensive capabilities for collecting real-time data for modal analysis, spectra generation and time history streaming applications. It also includes ability to post process time data previously acquired.

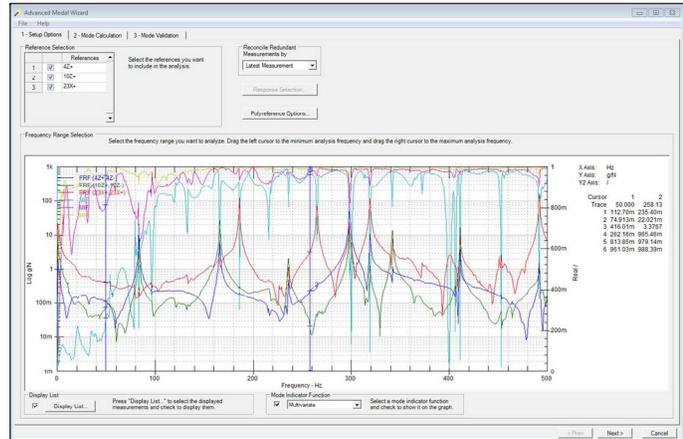
The Transient Processing module provides engineers with comprehensive capabilities for collecting real-time data for applications in which operating data is changing over time. The primary application is for fixed sample order tracking. It also supports the ability to post process time data previously acquired.



SINE SIGNAL PROCESSING PACKAGE

MODULES:

1. Core Test
2. Sine Processing
3. Closed Loop Control
4. Front End Driver (Either VT143X or EMX)

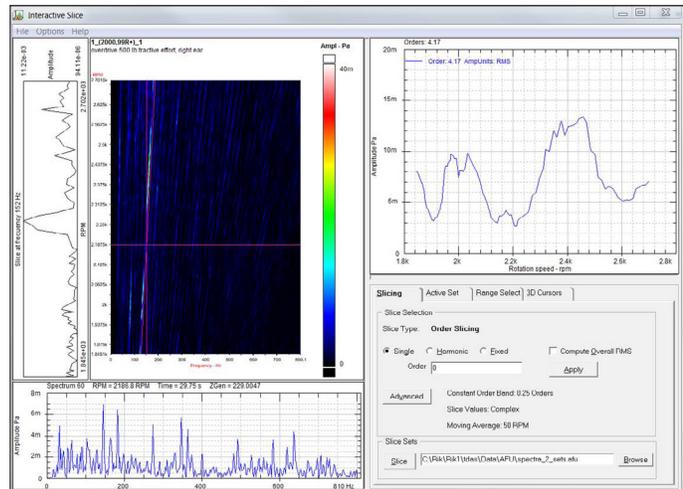


The Sine Processing module provides capability to measure the response of structures due to sine excitation to create spectra, auto spectra, spectral matrices or FRFs. Combined with other software options, this allows for multiple reference measurements and source control. It also supports the ability to post process time data previously acquired. The Closed Loop Control module provides for real-time, closed loop amplitude and phase control of one or more sine sources during a stepped sine test. Both amplitude and phase control can be separately enabled and disabled.

ADVANCED SIGNAL PROCESSING PACKAGE

MODULES:

1. Core Test
2. Stationary Processing
3. Transient Processing
4. Sine Processing
5. Closed Loop Control
6. Order Tracking
7. Multi Sine
8. Normal Mode Tuning
9. Front End Driver (Either VT143X or EMX)



The Advanced Signal Processing Package combines the Basic Signal Processing Package with the Sine Signal Processing package along with Order Tracking, Multi-Sine, and Normal Mode Tuning modules. The Order Tracking module provides test engineers with comprehensive capabilities for collecting live, synchronously sampled real-time order data from rotating machinery. Multi Sine provides computation of frequency response functions from stepped sine measurements. The Normal Mode module performs “classic” manual normal mode sine testing with multiple shakers. Functionality is available to manually “tune” the mode by visual reference to Lissajous figures and/or peak amplitudes. Data capture includes mode shapes as well as time.

BASIC MODAL PACKAGE

MODULES:

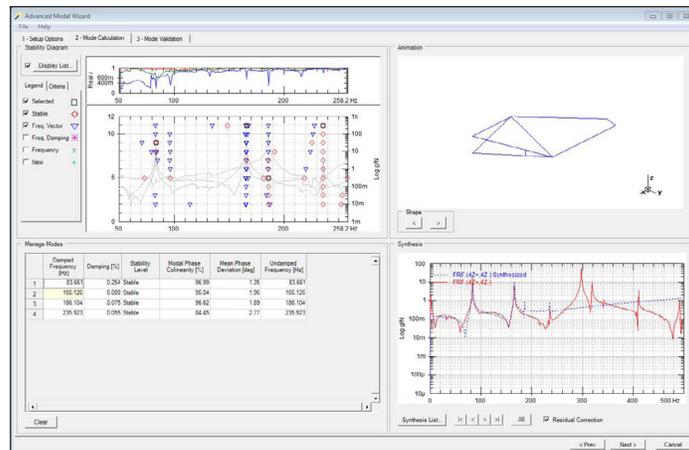
1. Core Test
2. Basic Modal
3. Advanced Modal
4. Front End Driver (Either VT143X or EMX)

The Basic Modal Package provides test engineers with comprehensive capabilities for processing modal test measurements and displaying the modal analysis results. It includes capabilities for modal parameter estimation, data display on geometry including animation, MAC calculations and FRF synthesis. The Advanced Modal module adds multiple-reference curvefitting to the SDOF capability of the Basic Modal module.

ADVANCED MODAL PACKAGE

MODULES:

1. Core Test
2. Basic Modal
3. Advanced Modal
4. Correlation
5. Structural Modification
6. Front End Driver (Either VT143X or EMX)



The Advanced Modal Package adds Correlation and Structural Modification modules to the features already present in the Basic Modal Package.

The Correlation Module provides well-integrated, complete capabilities for comparing dynamic finite element analysis and experimental modal analysis results. It includes capabilities for aligning test and analysis models for comparison of Test Data and visualization. The Correlation feature imports data from I-DEAS Modal Solution. Importing data from Ansys/Abaqus/Nastran is also possible through a separate data translator product.

Structural Modification module helps estimate the effects of basic structural changes on a tested structure. A sensitivity calculation determines the physical locations on the structure that are most sensitive to these basic types of modifications. comprehensive capabilities for collecting real-time data for applications in which operating data is changing over time. The primary application is for fixed sample order tracking. It also supports the ability to post process time data previously acquired.

REPORTER PACKAGE

MODULES:

1. Modal Post Processing
2. Shock Response Wizard
3. Reporter ODS + SDOF Analysis and Wizards
4. Reporter MDOF Advanced Modal Analysis and Wizard

The Reporter Package gives engineers the capability to browse sets of measurement data and analyze results regardless of origin, format, or location. From within Reporter, different types of data can easily be accessed and compiled into reports:

- Time history and spectrum functions
- I-DEAS™ results
- Universal files
- Audio industry standard data
- Third party noise and vibration vendor results.

To make reporting and sharing of information easier, Reporter can easily move data between Microsoft Office applications. In addition, Reporter allows for the easy manipulation of embedded 2D and Animation displays from within Microsoft Office or Active-X compliant software, as opposed to using static bitmap images in your reports and presentations.

The Reporter software package is designed for noise, vibration, and harshness managers, engineers, technicians and related personnel. Sharing databases, analyzing data, and reporting data is possible all from a standardized format. Reporter is standardized on the Microsoft Windows operating system with all Microsoft Windows operations (such as drag and drop) available, making it easy to perform the tasks.

For shock response, the package allows for calculation of SR using Absolute Acceleration, Relative Velocity, and Relative Displacement with Max, Maxi-Max and other typical presentations. TFI Reporter also guides the user through an operational deflection shapes analysis by following a step-by-step procedure. “Single Degree Of Freedom” and “Multiple Degree Of Freedom” parameter estimations for Modal are also covered in TFI Reporter’s step-by-step procedures. The guide for PolyReference Modal parameter estimation process includes mode indicator functions, mode shape previews, selectable curve fit ranges, and more.

Ordering Information

PART NUMBER	MODEL NUMBER	DESCRIPTION
72-5001-XXX*	Basic Signal Processing Package	Core Test Stationary Processing Transient Processing Front End Driver (Either VXI or EMX)
72-5002-XXX*	Sine Signal Processing Package	Core Test Sine Processing Closed Loop Control Front End Driver (Either VXI or EMX)
72-5003-XXX*	Advanced Signal Processing Package	Core Test Stationary Processing Transient Processing Sine Processing Closed Loop Control Order Tracking Multi Sine software Normal Mode Tuning Software Front End Driver (Either VXI or EMX)
72-5004-XXX*	Basic Modal Package	Core Test Basic Modal Advanced Modal
72-5005-XXX*	Advanced Modal Package	Core Test Basic Modal Advanced Modal Front End Driver (Either VXI or EMX) Correlation Structural Modification Front End Driver (Either VXI or EMX)
72-5006-XXX*	Reporting Package	I-DEAS Reporter Reporter Shock Response Wizard SW Reporter ODS/SDOF Wizard SW Reporter Advanced Modal Analysis SW
	Optional Tools	Fatigue (Prerequisite – Core Test) Noise Path Analysis VBOI - Visual Basic Open Interface (Prerequisite – Core Test) Matlab Interface Acoustic Intensity (Prerequisite – Core Test) Vold Kalman Filtering (Prerequisite – Core Test)

* Last three digits of part numbers refer to license terms. In place of "XXX" please use the following:

Perpetual license and MES Reference: "000"

Price Annual MES Contract Reference: "100"

Price Annual License Reference Price: "200"

Ordering Information

SUPPORTED PRODUCTS

PART NUMBER	MODEL NUMBER	DESCRIPTION
70-0409-002	EMX-4350	4-Channel, 625k Sa/s DSA Digitizer with IEPE support
70-0409-011	EMX-4380	4-Channel, 625k Sa/s DSA Digitizer with Charge and IEPE support
70-0409-004	EMX-4250	16-Channel, 204k Sa/s DSA Digitizer
70-0409-012	EMX-4251	8-Channel, 204k Sa/s DSA Digitizer
70-0409-008	EMX-1434	4-Channel, 204 kSa/s Arbitrary Waveform Source with Dual Tach
73-0056-000	VT1432B	16-channel 102.4kSa/s 24-bit digitizer plus DSP
73-0012-000	VT1434A	4-channel 65 kSa/sec Arbitrary Source
73-0058-000	VT1436	16-channel 102.4kSa/s 24-bit digitizer plus DSP with built-in IEPE conditioning
73-0011-000	VT1433B	8-channel 196 kSa/sec Digitizer plus DSP
73-0057-000	VT1435	8-channel 102.4kSa/s 24-bit digitizer plus DSP with built-in IEPE conditioning

PART NO. 83-0057-000
REV. 14A

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